The New England
Journal of Medicine

Copyright, 1951, by the Massachusetts Medical Society

Volume 244 MARCH 8, 1951 Number 10

GALL-BLADDER SURGERY IN A COMMUNITY HOSPITAL*

RICHARD H. THOMPSON, M.D.†

SALEM, MASSACHUSETTS

IN A community hospital of 290 beds, the surgery of gall-bladder disease and its sequelae is common. In order to study the methods used and the progress in this type of surgery in the recent past, 500 operative cases were obtained from the files of the Salem Hospital in the following manner:

A group study (Group A) of 250 consecutive cases was begun on January 1, 1938. This group covered the four years 1938 through 1941. A second group of equal size, and also consecutive, was obtained by working backward from December 31, 1949, and

FIGURE 1.

was found to extend back for approximately two and a half years.

Thus the two groups are separated by about six and a half years, or a little more than the period of World War II.

It is seen (Fig. 1) that the number of operations per year has risen on the average, there being 63 per year in Group A and a 50-per-cent increase to 93 per year in Group B.

The sex incidence of 4 females to 1 male is slightly higher than is usually reported.[1]

The ages of the patients in the two groups did not differ significantly (Group A average: 48 years, Group B average: 51 years). The average age for the entire group was 50 years.

SURGICAL PERSONNEL

The hospital staff comprises about 60 practicing physicians and surgeons — organized into a medical and a surgical service, services for the various specialties and a general practice group.

The 500 operations were done by 16 staff members and a few residents.

In the earlier period, covered by Group A, the organization was not complete, and nearly all mem-

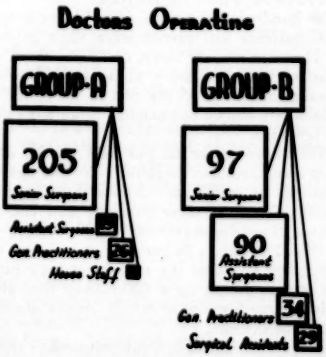

FIGURE 2.

bers of the staff were engaged to some extent in general practice.

The variation between the two groups shows clearly the change in staff organization (Fig. 2).

In Group A, 205 operations were performed by senior surgeons, 19 by assistant surgeons who were

*Presented at the annual meeting of the New England Surgical Society, Vergennes, Vermont, September 15, 1950.

†Visiting surgeon, Salem Hospital; clinical associate in surgery, Massachusetts General Hospital.

permanently assigned to the surgical service, and 26 by general practitioners, temporarily so assigned.

No operation in this group was performed by a member of the house staff.

In the second group, 97 operations were done by senior surgeons, 90 by assistant surgeons, 34 by general practitioners and 29 by surgical residents, serving as part of a program of affiliation with the Massachusetts General Hospital.

Roentgenographic Findings

As is to be expected, x-ray studies were made in a high percentage of the entire series, but because some records were not entirely complete, only those

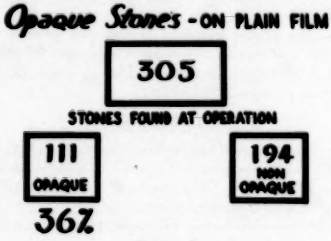

Figure 3.

cases in which there was a definite report of these studies have been used for analysis.

Three hundred and sixty-six, or 73 per cent, of the 500 patients had preoperative films made at Salem Hospital, and 54 more, or 12 per cent, were reported to have had x-ray films made elsewhere. This makes a total of 85 per cent of the series who were definitely known to have had x-ray films made before operation.

In 339 instances, or 68 per cent of the entire series, it was possible to check the x-ray findings with the findings at operation. Stones were found at operation in 305 of these patients, and the preoperative films demonstrated opaque stones 111 times (Fig. 3). This is 36 per cent; it indicates that at the Salem Hospital the radiologist may expect to see opaque stones on a plain x-ray film about once in every 3 cases in which stones are later proved to be present.

This is interesting, as it is difficult to find reports in the recent literature of studies on this subject. In the older literature,[2-4] the percentage of opaque stones seen is variously reported as from 20 to 50.

By the use of the method of Graham and Cole, an additional 75 patients were accurately shown before operation to have gallstones.

Thus, in the patients who had stones, as proved at operation, this finding was correctly predicted in 61 per cent.

This may seem a low percentage of correct x-ray diagnoses, but if we correlate the preoperative x-ray reports of abnormal findings with the number of times in which some abnormality of the gall bladder or bile ducts was found at operation, we obtain a different figure. In 359 x-ray reports an error was made only 29 times, which means 92 per cent of correct x-ray diagnoses.

Cholangiograms

Cholangiograms, which did not appear in the records of Group A, were done in 33 patients in Group B. The method was used five times during operation.[5]

In most instances this technic was used to rule out the presence of retained common-duct stones, and the findings were negative. However, in 4 pa-

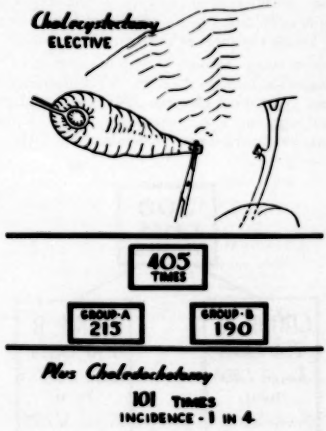

Figure 4.

tients, stones that had not been found in spite of careful search of the common duct were revealed by this method and removed at a later operation. Three of these were successful; in the fourth the stone was removed, but the patient, who was 81 years of age, apparently had a cerebral hemorrhage and died a few days after the operation.

Operations Performed

As would be expected, the largest number of operations done was of elective cholecystectomies for chronic cholecystitis and suspected or proved cholelithiasis. There were 405 of these (Fig. 4): 215 in Group A and 190 in Group B.

Exploration of the common bile duct was added to elective cholecystectomy 101 times, making an

incidence of 1 exploration of the duct for every 4 elective cholecystectomies.

These explorations were done for the usual indications from the history and operative findings that have been emphasized in the past,[6, 7] but from these records the impression is gained that enlargement of the common duct and palpation of stones within it were the indications that most frequently led our surgeons to do a choledochotomy.

Cholecystectomy without common-duct exploration was done in 41 patients who were jaundiced or had a history of jaundice, and in 181 patients whose gall bladders showed the presence of small stones. These two groups together constitute 47 per cent of the total number of cholecystectomies.

However, we note that 47 per cent of all the ducts explored contained stones, which is higher by 10 per cent than the figure given by Adams[1] in a recent report.

In the complete series, the presence of biliary calculi was recorded 410 times, and on 50 occasions common-duct stones were found. This is an incidence of 12 per cent.

Allen,[8] in 1936, found that common-duct stones represented 13.6 per cent of the total biliary-tract calculi in his series of over 1000 operations on the biliary tract at the Massachusetts General Hospital.

Although the figures are too small to be significant, it is interesting to note that in 49 common-duct explorations in Group A, stones were found in 23, or 47 per cent, whereas in Group B, with 57 explorations, the figure was also 47 per cent, as stones were found in 27 cases.

Secondary Operations for Common-Duct Stone

There were 3 common-duct explorations in which the gall bladder had been removed at our hospital a number of years before.

A 67-year-old woman underwent cholecystectomy in 1934. Small stones were found in the gall bladder; the common duct was normal to palpation. About three and a half years later she began having attacks of abdominal pain associated with transient jaundice. Common-duct exploration was done in 1939. A stone was found and was successfully removed.

A 60-year-old woman underwent cholecystectomy in 1942. The gall bladder was soft and contained small stones. The common duct was described as normal, and no special difficulty was encountered with the operation. She soon began to have attacks of pain, with transient jaundice. At the second operation in 1948, an area of stenosis in the common duct was found, but no stones were discovered.

A 54-year-old man underwent cholecystectomy in 1927. The gall bladder was reported as being "full of stones," but these were not described. He had no consequent symptoms until 21 years later, when he developed recurrent attacks of vomiting over a period of six months. Finally, when abdominal pain and jaundice developed, he was hospitalized and common-duct exploration was carried out. This included a transduodenal exploration of the papilla, but no stone was found. A postoperative cholangiogram showed that a retained common-duct stone was present, and at another operation this was successfully removed.

Jaundice

One hundred and two patients (Fig. 5), or 20 per cent of the entire series, either had jaundice on admission or had a history of jaundice. There was no significant difference in the number of jaundiced patients in the early or later groups, nor in the procedures carried out in these cases.

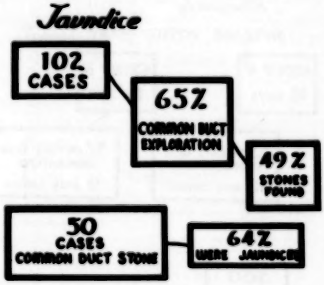

Figure 5.

Choledochotomy was done 65 times in these 102 patients; in 32 of the ducts, or 49 per cent, stones were found.

Adams,[1] in a recent review of 1100 operative cases, found that only 50 per cent of the patients with common-duct stones were, or had been, jaundiced. In our small group of 50 common ducts that were found to contain stones, 32, or 64 per cent, had jaundice or a history of it.

Acute Cases

Eighty-four patients (17 per cent of the entire series) were operated on during the acute phase of gall-bladder inflammation. The differences between Group A and Group B give evidence that the trend in the Salem Hospital, as well as elsewhere,[8-12] is toward early operation in acute gall-bladder disease.

It was found that in spite of the rather small total number of acute cases, only 30, or 36 per cent, of the 84 were in Group A, whereas nearly twice as many, 54 (or 64 per cent), were in Group B.

The patients included in the acute group were not all operated on within one or two days of ad-

mission, but their disease was in the acute phase on admission, and when operation was done there was still considerable gross evidence of inflammation.

In 28 cases in Group A in which the facts could be determined from the record, operation was performed within 3 days after the onset of the attack on 6 patients, or 21 per cent. In Group B this happened 18 times in 49 such cases, or in 39 per cent.

The change is further shown by the increase in the number of cholecystectomies performed — 45 in Group B, as against 21 in Group A. In spite of the fact that more acute cases were treated in Group B, this represents an increase of 13 per cent (from

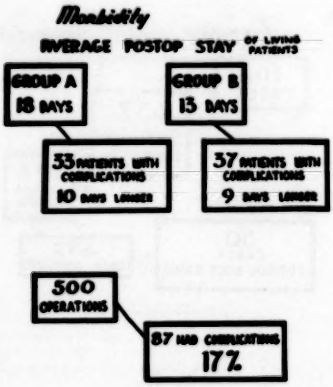

FIGURE 6.

70 per cent to 83 per cent) in the number of cholecystectomies. These figures are not statistically significant, but they may show a trend. Parallel to this is the fall in the percentage of cholecystostomies. This procedure was done 9 times in each group, and represents a fall from 30 per cent of Group A to 17 per cent of Group B.

In the entire group of acute cases, common-duct exploration was done 8 times, and in 5 instances stones were found.

It is interesting to note that perforation of the gall bladder occurred 7 times, but general peritonitis was not present in any case; the only death that resulted was from extensive carcinoma.

The postoperative course in the acute cases was more benign in the later group, for the average postoperative stay in the hospital was 6 days less in Group B than in Group A (Group A: 20 days; Group B: 14 days).

In the 84 patients who were treated during an acute attack, a total of 6 deaths occurred — a mortality of 7 per cent. The difference between Groups A and B could not be considered significant, but it is a fact that 4 of the 6 deaths were in the earlier group.

The mortality for the entire series of 500 operations (3.8 per cent) is definitely, although perhaps not significantly, lower than that for the acute group.

Carcinoma

There were 3 cases of carcinoma of gall bladder or bile ducts — an incidence of 0.6 per cent. The patients' ages were 59, 63, and 84 years. Two were men and 1 was a woman. All 3 had gallstones. Two of the 3 had jaundice on admission. One died shortly after operation, which was a partial cholecystectomy. The other 2 had cholecystectomies; each did well for three months, after which recurring jaundice and a mass of increasing size in the upper abdomen ushered in a downhill course that terminated fatally. The pathological report was definitely carcinoma of the gall bladder in 2 cases and in the third was believed to be carcinoma of the ampulla of the gall bladder, although grossly the gall bladder did not seem to be seriously involved.

Morbidity

Returning to the entire series in an attempt to show lessening in morbidity for the more recent period, during which the use of antibiotics has been universal and early ambulation widely practiced, it is seen (Fig. 6) that the average postoperative hospital stay in Group A was 18 days and in Group B, 13 days. There was, however, no shortening of additional stay in the patients who developed complications. Thirty-three patients with complications stayed an average of ten days longer in the first group and 37 with similar difficulties stayed nine days longer, on the average, in the second group.

The records of 87 patients, 17 per cent of the entire series, and 17 per cent and 18 per cent of Groups A and B respectively, showed complications either during, or soon after, their hospital stay. The individual complications and the various types are too few to be considered separately, but one category will be given consideration. This is the group of patients who had either proved or suspected common-duct stone after cholecystectomy.

There were 9 of these, and retained common-duct stone was proved at operation or at autopsy in 6. In all of these 6, either jaundice or the presence of small stones in the gall bladder was recorded at the first operation.

Of the 6 proved cases one died — a 61-year-old woman whose first operation was a cholecystostomy, for acute cholecystitis. Small stones were found in the gall bladder; the common duct was not explored. Profuse drainage from the cholecystostomy

wound persisted and cholecystectomy was done four months later. Again the common duct was not explored, as nothing abnormal was felt on palpation. However, bile drainage still persisted; and she died after a long septic course.

At autopsy a stone was found in the common duct.

In the remaining 5, common-duct exploration was done only once — at the time of the initial operation; and all patients have had their common-duct stones successfully removed.

Mortality

In the 500 operative cases, there were 19 deaths, or a 4 per cent mortality. This group and its two subgroups (13 deaths in Group A and 6 deaths in Group B) are too small to give statistically significant percentages, but certainly an appreciable reduction in mortality is shown.

Possibly the advent of antibiotics plays an important part in this lowered mortality, for in Group A sepsis contributed in a major way to the fatal result in 9 of the 13 deaths (69.2 per cent), whereas in Group B only 1 of the 6 deaths occurred in a patient who had serious sepsis (16.6 per cent).

If the ages of the patients who died are studied, a definite increase is noted in Group B (Group A average 58 years; Group B, 65 years).

Further emphasis on age and freedom from sepsis as important factors in the fatal outcome is indicated when it is noted that 3 of the 6 deaths in Group B were from cerebral hemorrhage, congestive heart failure and carcinoma, in patients who were 81, 76 and 84 years old respectively. In Group A only one patient succumbed to degenerative disease; she was 69 years old.

Summary

The records of 500 patients operated upon in a community hospital for gall-bladder disease and its sequelae are reviewed.

The cases are divided into two groups of 250 consecutive operations each, which are separated by a period of about six and a half years, with the second period ending at the beginning of 1950.

The differences between findings in the two groups are not always statistically significant, but certain tendencies are shown. There were more operations during the acute phase of cholecystitis in the second group. The patients in the second group also had shorter postoperative stays, and fewer of them died.

X-ray studies showed that about 1 out of every 3 patients at this hospital who have gallstones can be expected to show opaque stones on a plain x-ray film, and also that by all roentgenographic methods the radiological department is over 90 per cent correct in its diagnosis of gall-bladder disease.

Cholecystectomy without exploration of the common duct is being done with considerable frequency in patients with jaundice and with small stones in the gall bladder. All of 6 patients with proved common-duct stone after cholecystectomy had one of these findings at the time of the first operation.

Nevertheless, nearly half (47 per cent) of the common ducts explored in this series were found to contain stones.

References

1. Adams, R., and Stranahan, A. Cholecystitis and cholelithiasis: analytical report of 1104 operative cases. *Surg., Gynec. & Obst.* **85**:776-784, 1947.
2. Case, J. T. Some statistics on negative and positive roentgen diagnosis of gallstones. *Am. J. Roentgenol.* **3**:246-252, 1916.
3. Cole, L. G. Detection of pure cholesterine gall-stones by roentgen rays. *Am. J. Roentgenol.* **2**:640-651, 1914.
4. Pfahler, G. E. Roentgen rays in diagnosis of gall-stones and cholecystitis, and improvement in technic. *J. A. M. A.* **62**:1304-1306, 1914.
5. Partington, P. F., and Sachs, M. D. Routine use of operative cholangiography. *Surg., Gynec. & Obst.* **87**:299-307, 1948.
6. Allen, A. W. Diagnosis and treatment of stones in common bile duct. *Surg., Gynec. & Obst.* **62**:347-357, 1936.
7. Colcock, B. P. Choledochostomy: its place in surgery of biliary tract. *S. Clin. North America* **28**:641-647, 1948.
8. Cutler, C. W., Jr. Biliary tract emergencies in aged. *S. Clin. North America* **29**:361-368, 1949.
9. Glenn, F. Surgical treatment of acute cholecystitis. *Surg., Gynec. & Obst.* **90**:643-648, 1950.
10. Marshall, S. F. Gallstones: surgical problem. *S. Clin. North America* **28**:627-632, 1948.
11. Patterson, H. Acute fulminating cholecystitis. *Surg., Gynec. & Obst.* **89**:364, 1949.
12. Zollinger, R. Acute cholecystitis. *New Eng. J. Med.* **224**:533-537, 1941.

INTERSTITIAL MYOCARDITIS IN CHILDREN*

C. G. Tedeschi, M.D.,† and Thomas D. Stevenson, Jr., M.D.‡

BOSTON AND FRAMINGHAM, MASSACHUSETTS

An increasing number of case reports and some surveys on post-mortem material, showing varying degrees of myocardial involvement more frequently than clinical observation might have led one to suspect, call for a revision of the generally expressed belief that infectious processes of children, with the exception of rheumatic disease and diphtheria, rarely affect the myocardium. Saphir's[1] demonstration of 97 cases of myocarditis in 1420 consecutive autopsies in children (6.83 per cent), as compared with 150 instances of myocarditis found during the same period in 3712 autopsies on adults (4 per cent), speaks strongly for the necessity of a deeper inquiry into this condition.

Review of Literature

Although by no means complete or inclusive, Marshall's[2] classification of the various forms of myocarditis into "specific" (such as rheumatic, tuberculous and so forth), "nonspecific," "toxic," "septic" (bacterial) and "isolated" still seems adequate from the standpoint of basic understanding. That the myocardium can be affected in the course of an infectious or toxic process is well understood, and it is not within the scope of this presentation to review the evidences that warrant this conclusion. More difficult to explain is the apparently "isolated" myocardial involvement, leading to sudden and unexpected death, in children who have no other apparent disease that may account for the involvement of the myocardium. Most of the cases fitting into this little-understood category were accidentally disclosed by the microscope, and the severity of myocardial damage it revealed could hardly be reconciled with the relative freedom from cardiovascular symptoms shown by the clinical record.

A number of labels, such as "Fiedler's myocarditis," "idiopathic myocarditis," "isolated myocarditis," "interstitial myocarditis" and so forth, have been attached to this condition, each indicating the failure of any attempt to identify the intrinsic nature of the process. Eponyms are not often desirable; since the term "idiopathic" has no meaning and "isolated" is in reality suggested by false pretenses, the term "interstitial," based on consistent morphologic ground, still seems to be the most appropriate to designate the disease.

According to Vischer,[3] the first mention of interstitial myocarditis in a child is to be found in a report by Foster (1906), seven years after Fiedler's original description (1899) of an apparently similar condition in adults. Saphir,[1] however, accredits the first case report to Zuppinger (1901), who described the condition in a three-year-old child. Since that time, other cases fulfilling Fiedler's specifications have been slowly accumulating; others, pathologically similar, but misinterpreted and displaced under the heading of an overemphasized status thymicolymphaticus, might be included in the same category. The sudden and unexpected death of the patients, the lymphocytic type of infiltrate in the myocardium and the occasional concomitancy of aspects regarded as characteristics of this constitutional disorder explain the erroneous labeling found in some early studies. This leads one to suspect that cases of interstitial myocarditis in children are more numerous than one might deduce from the published reports.

Up to 1944, thirty-five such cases had been recorded in the literature. From the analysis of these cases and of three additional ones of their own, Saphir[1] and his associates have offered a comprehensive view of this condition: ". . . the clinical picture is one of progressive myocardial failure, unassociated with the usual causes of myocardial damage. The outstanding symptoms are tachycardia, out of all proportion to the temperature of the patient, frequently cardiac enlargement and often increasing cyanosis. The electrocardiogram may reveal changes in the T wave. The course of the disease ordinarily is rapid and progressively downhill. Death may occur suddenly and unexpectedly."

Despite this array of symptoms, in the great majority of the reported cases the diagnosis was made by the observation of the microscopic sections of the myocardium, which revealed either a granulomatous or a more or less diffuse form of interstitial myocarditis. The inflammatory exudate is composed of large mononuclear leukocytes, lymphocytes, plasma cells and occasional polymorphonuclear leukocytes. The valvular endocardium was consistently described as normal. Mention is made, however, of endocardial involvement in additional recent cases, which is at variance with Scott and Saphir's[1] (1929) belief of a consistent integrity of the endocardium and pericardium. In both cases studied by Kenny and Sanes,[4] the endocardium showed slight fibrosis; mural thrombosis was present in Fox and Overstreet's[5] case.

Although the symptoms and signs of rapidly developing cardiac decompensation and the evidence of myocardial damage at post-mortem ex-

*From the Department of Pathology of the Boston University School of Medicine and the Division of Laboratories of the Framingham Union Hospital, Framingham, Mass.

†Instructor in pathology, Boston University School of Medicine; director of laboratories of the Framingham Union Hospital, Framingham, Mass.

‡Assistant surgeon (R), United States Public Health Service.

amination are the most striking features in all reports, associated conditions are mentioned in a number of cases.

A lobular pneumonia, in the upper lobe of the left lung, coexisted in one case of Kenney and Sanes. In the case of Fox and Overstreet, the myocardial condition was preceded by an upper-respiratory-tract infection, slight cough and cyanosis; before death, cyanosis became more severe and peripheral edema appeared. In Greenebaum, Felson and Zeligs'[6] case, cyanosis gradually developed and a bronchopneumonia was found at autopsy.

In Toreson's[7] case, a history of prolonged malnutrition preceded the development of the cardiac symptoms. At autopsy the heart was dilated and hypertrophied, and mural thrombi were present in all chambers of the heart. The microscopic sections revealed an interstitial type of myocarditis, most severely involving the inner third of the myocardium but also encroaching on the endocardium; the pericardium was intact. Malnutrition was considered by the author a significant factor in the production of these changes.

In the case of Coulter and Marcuse,[8] death occurred 72 hours after the beginning of an upper respiratory infection followed by precordial pain, dyspnea and vomiting. The myocardium was diffusely infiltrated by lymphocytic cells, and there was a small pericardial hemorrhage; the endocardium did not seem to be involved.

In a review of the material from 3600 autopsies, Marcuse[9] found interstitial myocarditis in 36 cases, including 8 in children. Unfortunately, no details are given on the clinical and pathological aspects of these eight cases.

Five cases of sudden death, preceded by marked respiratory difficulty and with findings of interstitial myocarditis, were presented by Saphir.[10] There was concomitant edema of the vocal cords, epiglottis and subglottic region, which was regarded as evidence of early laryngotracheobronchitis.

Dyspnea, cyanosis and anorexia were the most prominent complaints in the 4 cases reported by House.[11] In one of these cases the interstitial myocarditis was granulomatous in type; in the three others there was diffuse myocardial infiltration by inflammatory cells, mostly lymphocytes. Interstitial edema coexisted, and the muscle fibers showed moderate damage. In 3 of these cases there was a minimal involvement of the pericardium, with foci and scattered exudative cells. The endocardium was similarly involved in one case. The author properly comments upon the evidence of interstitial pneumonia in 3 cases and of what appeared to be terminal bronchopneumonia in the fourth. In 1 of these cases, the second, there was a history of the mother's developing pneumonia on the fourth day post partum; and for that reason the baby was removed from breast feeding. The infant also contracted an upper-respiratory infection five weeks before the onset of the terminal illness. In another case, the first, there was an upper-respiratory infection followed by bilateral otitis media, eight months before death.

In the 11-month-old boy mentioned by Jones and Marshall,[12] there were intermittent attacks of vomiting for one month prior to admission to the hospital. After admission, vomiting continued at irregular intervals, and he suffered from periodic attacks of severe dyspnea. He died during one of these attacks, fourteen days after admission. At autopsy the heart was dilated, and the endocardium appeared to be thickened. Histologically, the myocardium was seen to be diffusely infiltrated by lymphocytes. Also, in the second of the five cases of interstitial myocarditis of Lind and Hultquist's[13] series, the mural endocardium was involved by the process, and a partly organized thrombus was found in the left auricle. Fibrinous pericarditis coexisted.

The 25 cases reported in the literature from 1944 to date, as compared with the 38 gathered by Saphir[1] and associates in the preceding forty-three years, show an apparent increase of this little-understood type of myocarditis.

Since by definition the prerequisite of "isolated myocarditis" is the absence of any other disease that may be correlated with the myocardial process, many of the cases previously reported are invalidated by this requirement — or it seems possible that a number of factors and agents, irrelevant and apparently of a mild nature per se, may lead, under special circumstances or in predisposed persons, to severe myocardial complications.

Case Reports

Case 1. C. E. G., an 11-month-old girl, was first seen by a physician because of restlessness, apparently due to a mild upper-respiratory infection. The child was afebrile, and the only abnormalities noted were slight redness of the nasopharynx and a moderate mucoid postnasal discharge. The family and personal histories were not relevant; delivery had been normal and without incident. In the next twenty-four hours the child developed severe dyspnea and cyanosis, and was sent to the hospital in this condition.

Examination on admission revealed a definitely ill infant with rapid (60 per minute), labored respirations and marked cyanosis. The temperature was 102, the pulse rate 120 and regular. Redness of the pharynx and postnasal discharge were still present. No heart abnormalities were noted and the remainder of the physical examination was not remarkable. An x-ray film of the chest was suggestive of "bilateral pneumonia," but no comment was made on the size of the heart. Penicillin was administered and the infant was placed in an oxygen tent, but she died two hours after admission. The precipitous course of events prevented any laboratory investigation.

Post-mortem findings: The body was that of a well developed and well nourished female infant of an estimated age of 10 months to 1 year. No abnormalities were noted on inspection; when the peritoneal cavity was opened, the abdominal organs were seen to bear their normal relation to each other. No fluid was present; the serous membranes were normal. The liver was enlarged and congested; its lower border extended 3 cm. below the costal margin at the level of the right midclavicular line. From 3 to 5 cc. of amber-colored clear fluid was present in both pleural spaces. The heart was not abnormal in shape, but was larger than expected (43 gm.); when the four chambers were opened, the cavity of the left ventricle was seen to be dilated. The myocardium was

light brown in color and flabby in consistence. The pericardium and mural and valvular endocardium were grossly normal. Both lungs were congested throughout and slightly rubbery in consistence in some areas. The bronchial tree was lined by reddened mucosa but was otherwise not remarkable. The hilar lymph nodes were not enlarged. The thymus was within normal limits. The cranial content was not examined.

Microscopical description of the organs is here limited to the heart and lungs, which were found to be the only organs affected.

The microscopical sections from the myocardium showed diffuse infiltration by inflammatory cells, affecting both right

FIGURE 1. *Diffuse Myocardial Infiltration by Inflammatory Cells, Most Prominent in Proximity of Engorged Blood Vessels (Case 1).*

and left ventricles and to a lesser extent the walls of the auricles. The inflammatory cells were mostly lymphocytes, interspersed with less numerous plasma cells, fibroblasts and large monocytic cells with characteristics of histiocytes. These cells were distributed throughout the myocardium, but they appeared to be most numerous around the walls of the blood vessels, which were engorged and showed occasional swelling of the endothelial linings. Where the cellular infiltration was most severe, the muscle fibers seemed thinned and spread apart, but on the whole they were well preserved and only in limited areas displayed loss of striations or swelling by edema, most apparent in the papillary muscles. Inflammatory cells, of the same type of those infiltrating the myocardium, were scattered in both the epicardium and the mural endocardium lining the left ventricle. Except for moderate edema of the mitral leaflets, the valves were not abnormal.

The other significant change was shown by the sections from the lungs, both displaying, in broad areas, narrowing of the alveolar spaces. This was due to thickening of the walls, in the absence of any demonstrable intra-alveolar exudate. The increase in thickness of the walls resulted from a dense infiltration of mononuclear cells, mostly lymphocytes and histiocytes. The blood vessels were engorged and showed occasional edema of the walls, extending into the periadventitial connective tissue. Inflammatory cells, similar to those infiltrating the alveolar walls, were noticeable in the walls of the small and middle-sized bronchi, the epithelial lining of which was missing at many points.

No micro-organisms were recovered in cultures from the heart and lungs.

CASE 2. J. A., a six-week-old boy, was well until four days before admission, when he developed vomiting of nonprojectile nature and a loose, watery diarrhea. The infant refused food and the vomiting gradually subsided, but the diarrhea continued until admission. The family history was not contributory. Birth, growth and development had been normal. No dyspnea, cyanosis, cough or fever were recorded.

Examination at admission showed a well developed and well nourished infant, markedly dehydrated. The temperature was 99°, the pulse rate 140 and regular. The respirations were rapid, with a rate of 90 per minute. The heart was enlarged to percussion, the left border of cardiac dullness extending 2 cm. beyond the left midclavicular line. No thrills or murmurs were heard. The liver edge was palpable, but the spleen could not be felt. The remainder of the physical examination was not remarkable.

Examination of the blood revealed a red-cell count of 3,960,000, with a hemoglobin of 16 gm., and a white-cell

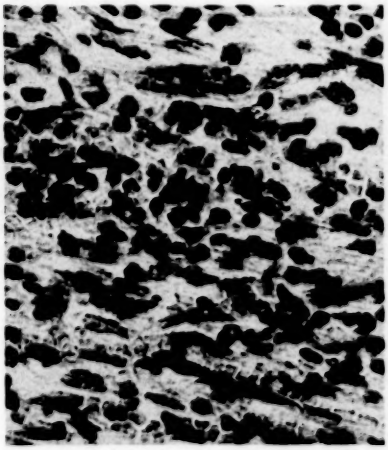

FIGURE 2. *From the Same Field as Figure 1, at Higher Magnification, Showing the Mononuclear Nature of the Inflammatory Exudate, Including Lymphocytes with Interspersed Histiocytes Plasma Cells and Occasional Fibroblasts (Case 1).*

count of 16,100, 66 per cent of which were lymphocytes. Urinalysis and spinal-fluid examination were normal. A blood culture was negative. An x-ray film of the chest showed diffuse bilateral increased density in the lungs, which was regarded as consistent with a bronchopneumonic process.

The infant was placed in an oxygen tent and penicillin and sulfadiazine were administered. An isotonic solution of saline and a 5 per cent solution of dextrose were given intravenously to restore hydration. The infant's condition became progressively worse, the respiratory distress became more pronounced, cyanosis developed and he died eight hours after admission to the hospital, four days after onset of the illness.

Post-mortem findings: The body was that of a well developed and well nourished male infant. Cyanosis of the lips, mucous membrane and nail beds was prominent. Opening of the abdominal cavity revealed the presence of about 30 cc. of amber-colored, clear fluid. The liver was enlarged and congested, and its lower border extended 2.5 cm. below the costal margin at the right midclavicular line. The stomach and intestines and the remainder of the abdominal organs were not remarkable. Removal of the chest plate showed both lungs to be well expanded and free from adhesions. In cut section, they displayed diffuse congestion, but no areas of consolidation were found. The thymus did not seem to be abnormal. When the pericardial sac was opened, 2 cc. of lemon-colored, clear fluid was found in it, and both parietal and visceral pericardium appeared slightly congested. The heart weighed 30 gm. The chambers were not dilated and the walls of the ventricles were not thickened, but the myocardium was flaccid and paler than normal. The mural endocardium lining the left ventricle had a patchy, opaque appearance. The cardiac valves were normal. The cranial content was examined, but no changes were shown.

The microscopical study of the sections in this case also showed heart and lungs to be the only sites of significant lesions.

Between the muscle fibers there was an infiltration, both patchy and diffuse, of small mononuclear cells, mostly lymphocytes and histiocytes interspersed with a few granulocytes and plasma cells. The blood vessels were engorged, and edema was noticeable in the periadventitial fibrous connective tissue. The muscle fibers were thinned in places, whereas in some other places they appeared swollen and vacuolated and displayed loss of striation. The walls of the right and left ventricles were involved, but the latter more severely. A few inflammatory cells were present also in the auricles. The valves were found to be normal, but a few irregularly scattered inflammatory cells were present in the mural endocardium and epicardium.

The lungs showed evidence of interstitial pneumonia. The alveolar walls were thickened, due mainly to engorgement of blood capillaries, and to infiltration by lymphocytic cells and less numerous histiocytes and fibroblasts. The alveolar spaces were narrowed but free of cellular exudate; in limited areas they contained desquamated alveolar cells.

No micro-organisms were grown in cultures from the heart, lungs or spleen.

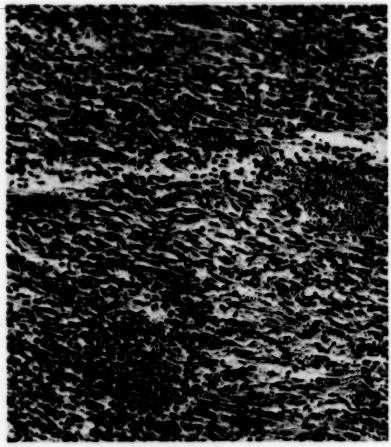

FIGURE 3. *Interstitial Myocarditis with Patchy or Diffuse Infiltration by Inflammatory Cells; Generalized Vascular Congestion (Case 2).*

COMMENT

Acute myocarditis is seldom characterized by histologic features that may give some clue to the nature of the causative agent. This was found to be true in our two cases also, the lesion consisting of a nonspecific interstitial exudate, not dissimilar to that seen in diffuse myocarditis associated with various infectious diseases.

FIGURE 4. *From the Same Field as Figure 3, at Higher Magnification, Showing Predominance of Mononuclear Cells, Mostly Lymphocytes and Histiocytes (Case 2).*

Minimal damage of muscle fibers and some degeneration of the collagen were concurrent changes, but these findings are not significant, since they are rather frequent in the presence of inflammation, regardless of its cause.

In both cases, endocardium and epicardium appeared to be involved in the inflammatory process, although less extensively than the myocardium. This has been shown by others in similar cases. A revision of the belief that endocardium and epicardium are spared in so-called "interstitial myocarditis" is therefore indicated by the findings.

Twenty-six hours intercurred in the first case (C. E. G.), and four days in the second case (J. A.), between the onset of the symptoms of illness and death, which occurred suddenly and unexpectedly,

following a rapid downhill course. Tachycardia, out of all proportion to the temperature of the patient, increasing cyanosis and rapid, labored respirations were the outstanding symptoms in the first case; vomiting and loose, watery diarrhea, in the second. A pneumonic process was suspected in both at x-ray investigation, confirmed at autopsy and classified as "interstitial" in type. Since, as Saphir[14] stated in his review, the label of "isolated myocarditis" is justified only in the absence of any other major pathologic condition that may be correlated with the myocardial process, one might justifiably question the classification of our two cases as isolated myocarditis — but if such rigid criteria were applied to all observations reported as isolated myocarditis, very few cases would satisfy these criteria.

No evidence was found in our cases of the agents that led to the development of the cardiac condition. Cultures from the heart and lungs and bacterioscopic study of the sections of these organs, including Levaditi's stain and acid-fast stains, failed in both cases to reveal pathogenic organisms. This of course does not rule out the possibility that micro-organisms might have been present and not shown due to the inadequacy of the investigation, or that they had existed but were no longer demonstrable. It is well known that micro-organisms act not only by their presence but also through the toxins that they elaborate. In the specific instance of the heart, an exudative response both in the myocardium and in the endocardium, not dissimilar in type from that occurring in the process under consideration, has been shown to occur under controlled experimental conditions following parenteral administration of a variety of bacterial toxins.[15, 16]

Mallory and Keefer[17] have described focal accumulations of lymphocytes, plasma cells and histiocytes, both beneath the endocardium and in the depth of the myocardium in cases of infection by hemolytic streptococci. They thought that these lesions were due, in part, to an antigen-antibody reaction. It seems possible that a diffuse interstitial myocarditis could develop on the same basis. Idiosyncrasy to chemicals, and also drugs of various types, in sensitized individuals have been proved possible agents of myocardial damage. Since in both our cases administration of drugs and antibiotics was instituted shortly before death, and no medications of any sort had been given previously, any such etiologic factor appears to be a remote possibility. Finland, Parker, Barnes and Jolliffe[18] have reported two cases of influenza A pneumonia associated with a nonbacterial type of myocarditis. Schmidt[19] has succeeded in isolating from a chimpanzee dying of interstitial myocarditis a virus with both neurotropic and cardiotropic features. Myocarditis occurs frequently in acute poliomyelitis; since its cause would have remained otherwise unsatisfactorily explained, poliomyelitis virus was considered the incriminating factor.[20] The reported occurrence of myocarditis in other virus diseases, including epidemic encephalitis, mumps and influenza suggests that a virus infection may be linked with myocarditis of this type.[21]

If it is assumed that a number of viruses may cause cardiac lesions, we are confronted with the problem of the mode of invasion of the heart by the virus. In monkeys with poliomyelitis, the virus has been demonstrated in the blood stream (Ludden and Edwards[20]). On the other hand, both Ludden and Edwards and Saphir and Wile[22] have called attention to the occasional evidence of injury of intramyocardial nerve fibers. Interstitial edema and apparent increase in cellularity, mostly by perineural fibroblasts, were noticed also in the first of our two cases in a number of nerve bundles within the myocardium. It seems, therefore, a supposition worthy of consideration that some viruses may enter the myocardium along the nerves.

In view of the age of the patients an infectious process developing in intrauterine life was thought of but considered a remote possibility. Congenital abnormalities were lacking. Pregnancy had been uneventful and the heart in neither case showed evidence of endocardial fibrosis or fibroelastosis, the most common manifestation of fetal endomyocarditis.

It is perhaps more than a mere coincidence that in numerous cases of diffuse interstitial myocarditis in children, including our own, the series of symptoms was begun by signs of upper-respiratory infection, often culminating in an interstitial type of pneumonia, the significance of which was, in our opinion, overlooked or underestimated by previous authors.* In some other cases, vomiting and diarrhea are described among the early symptoms. Although further study will be necessary to evaluate this point, all of this might indicate that so-called "isolated myocarditis" is in reality a manifestation of a more generalized disease process.

A general awareness of the sensitivity of the myocardium in children to various disease agents is indicated, since the initial manifestations of this generally fatal condition are not infrequently those of an upper respiratory infection, such as a common cold or an apparently mild gastrointestinal disorder.

Careful clinical observation might well disclose early evidence of myocardial involvement at a time when precautionary measures, bed rest and treatment might still be of some avail.

Summary

Two cases of interstitial myocarditis in children, one aged 11 months and the other 6 weeks, are presented. In both cases endocardium and epicardium appeared to be involved in the inflammatory

*An additional case of acute isolated myocarditis in a ten-year-old child has recently been reported by Weber et al.[23] The symptoms included dyspnea, an enlarged heart and x-ray findings of pneumonia. The child died in six days. Microscopical examination of the heart showed infiltration of the myocardium with inflammatory cells, mostly lymphocytes.

process, although less extensively than the myocardium. Since this has been shown by others in similar cases, a revision of the belief that endocardium and epicardium are spared in this condition is indicated by the findings. Signs of an upper respiratory infection were the outstanding symptoms in the first case; signs of a gastrointestinal disorder, in the second case. Twenty-six hours intercurred in the first case, and four days in the second case, between the onset of the symptoms of illness and death, which occurred suddenly and unexpectedly. Interstitial pneumonia was a concomitant finding in both. The causative agent could not be demonstrated in either case.

An analysis of the features of these two cases and of similar cases in the literature suggests that so-called "isolated myocarditis" in children is, in reality, a manifestation of a more generalized disease process, and that a number of factors and agents irrelevant and apparently of a mild nature per se may lead under special circumstances or in predisposed persons to severe myocardial complications.

References

1. Saphir, O., Wile, S. A., and Reingold, I. M. Myocarditis in children. *Am. J. Dis. Child.* **67**:294-312, 1944.
2. Marshall, R. Cited by Saphir.[1]
3. Vischer, M. Cited by Saphir.[1]
4. Kenny, F. E., and Sanes, S. Cited by Saphir.[1]
5. Fox, I. R., and Overstreet, R. M. Cited by Saphir.[1]
6. Greenebaum, G. V., Felson, W., and Zeligs, M. Cited by Saphir.[1]
7. Toreson, W. E. Diffuse isolated myocarditis associated with dietary deficiency. *Arch. Int. Med.* **73**:375-383, 1944.
8. Coulter, W. W., and Marcuse, P. Acute isolated myocarditis: case report. *Am. J. Clin. Path.* **14**:399-401, 1944.
9. Marcuse, P. M. Nonspecific myocarditis: analysis of series of 36 cases. *Arch. Path.* **43**:602-619, 1947.
10. Saphir, O. Laryngeal edema, myocarditis and unexpected death (early acute laryngotracheobronchitis). *Am. J. M. Sc.* **210**:296-301, 1945.
11. House, R. K. Diffuse interstitial myocarditis in children. *Am. J. Path.* **24**:1235-1257, 1948.
12. Jones, H. E., and Marshall, A. G. Isolated (Fiedler's) myocarditis. *Arch. Dis. Child.* **23**:201-204, 1948.
13. Lind, J., and Hultquist, G. T. Isolated myocarditis in newborn and young infants. *Am. Heart J.* **38**:123-129, 1949.
14. Saphir, O. Myocarditis: general review, with analysis of 240 cases. *Arch. Path.* **32**:1000-1051, 1941.
15. Tedeschi, C. G. Local tissue reactivity (Shwartzman phenomenon) in heart and femoral artery of rabbit. *Arch. Path.* **41**:565-579, 1946.
16. *Idem.* Sulla miocardite tubercolare (Osservazioni istopatologiche, e ricerche sperimentali). *Gior. di batteriol. e immunol.* **4**:1097-1112, 1929.
17. Mallory, G. K., and Keefer, C. S. Tissue reactions in fatal cases of Streptococcus haemolyticus infection. *Arch. Path.* **32**:334-355, 1941.
18. Finland, M., Parker, F., Jr., Barnes, M. W., and Jolliffe, L. S. Acute myocarditis in influenza A infections: two cases of non-bacterial myocarditis, with isolation of virus from lungs. *Am. J. M. Sc.* **209**:455-468, 1945.
19. Schmidt, E. C. H. Virus myocarditis; pathologic and experimental studies. *Am. J. Path.* **24**:97-117, 1948.
20. Ludden, T. E., and Edwards, J. E. Carditis in poliomyelitis: anatomic study of 35 cases and review of literature. *Am. J. Path.* **25**: 357-381, 1949.
21. Lyon, E. Myocarditis in virus diseases of man. *M. Rec.* **160**:403-408, 1947.
22. Saphir, O., and Wile, S. A. Myocarditis in poliomyelitis. *Am. J. M. Sc.* **203**:781-788, 1942.
23. Weber, W. W., Baldwin, J. S., and Hall, J. W. Acute isolated myocarditis: review of literature and report of case in ten-year-old child. *Pediatrics* **3**:829-836, 1949.

TREATMENT RESULTS IN THE MAJOR PSYCHOSES

Report of the Boston Psychopathic Hospital

J. Sanbourne Bockoven, M.D.,* Milton Greenblatt, M.D.,† and Harry C. Solomon, M.D.‡

BOSTON

THE long-accepted view that persons attacked by psychosis are doomed to life-long custodial care is seriously challenged by present-day experience. The somatic therapies have revived hope for the ultimate curability of the most serious mental derangements, and concurrently a new enthusiasm for psychotherapy and social therapy has emerged.

The statistics of the Boston Psychopathic Hospital provide a basis for evaluating the effectiveness of modern treatment. The Boston Psychopathic Hospital admits three classes of patients:

Patients with gross abnormalities of thinking, feeling or behavior, admitted from the community on referral by practicing physicians. Some of these patients are discharged as *not insane* within a period of ten days; others, after observation, are found to be suffering from a major psychosis and are committed by court action to the hospital for further care and treatment.

Patients referred from the District Courts for psychiatric evaluation. These are persons brought into court for various infractions of the law who have impressed the judge as possibly having mental deviations. A majority of these patients are found on examination to be "not committable" and are returned to the custody of the court. A few are found to have symptoms sufficient to allow for commitment.

Patients who enter the hospital of their own volition (voluntary patients). They usually represent disorders of mild severity that are not included in the category of committable diseases, and are discharged after treatment periods of varying length. Occasionally, however, some patients in this group suffer from deep-seated maladjustments that require commitment.

It should be emphasized that this study refers only to those patients who displayed abnormalities of thought and behavior so flagrant as to require their

*Assistant in psychiatry, Harvard Medical School; assistant physician, Department of Research, Boston Psychopathic Hospital.

†Associate in psychiatry, Harvard Medical School; chief of research and laboratories, Boston Psychopathic Hospital.

‡Professor of psychiatry, Harvard Medical School; medical director, Boston Psychopathic Hospital.

commitment for an indefinite period to a mental hospital as insane.

The evaluation of treatment effectiveness is limited in this study to statistics concerning discharge from the hospital and duration of stay in the community. As indicated below, the overwhelming majority of those who were discharged were considered by the hospital staff either improved or recovered. When such patients remained in the community for long periods of time it was considered presumptive, though not conclusive, evidence that the improvement had been maintained. The qualitative nature of their adjustment at home and in the community, although of the greatest importance, is a complex and challenging problem not within the scope of this study.

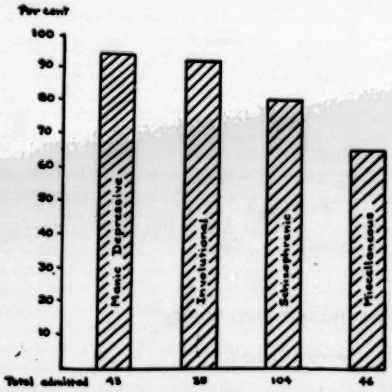

FIGURE 1. *Proportion of Committed Patients (According to Diagnosis) Discharged Home in 1949.*

RESULTS OF TREATMENT

Discharges

In 1949, 81 per cent of all committed patients (228) returned to their homes after varying periods of hospital treatment. One hundred and seventy-one patients were discharged as improved and recovered. Fourteen patients were discharged home as unimproved.* Figure 1 shows the analysis of the 228 patients according to diagnostic category. Results were most satisfactory in manic-depressive and involutional cases, 91 per cent and 93 per cent of whom, respectively, were discharged home. More surprising, however, was the high proportion of schizophrenic patients who were able to leave the hospital (79 per cent). They very likely owe their improvement not only to electric shock and insulin treatment but also in considerable measure to the unremitting efforts of attendants, occupational therapists, nurses and physicians to bring about resocialization. Considered as a whole, the so-called functional psychoses numbered 182, of whom 154, or 84 per cent, were discharged home. Eight, or 4.4 per cent, were discharged as unimproved — 146, or 79.6 per cent, as improved or recovered.

The "miscellaneous" psychoses referred to in Figure 1 include patients diagnosed as having psychoses of infectious origin, metabolic disorders and organic diseases of the nervous system. (Committed psychoneurotic patients, few in number, were included in the miscellaneous group.) Sixty-five per cent of the miscellaneous group were able to return home.

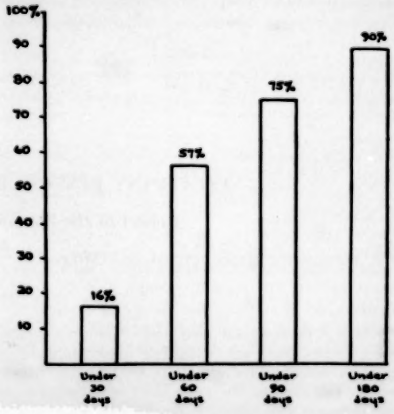

FIGURE 2. *Duration of Hospitalization of 185 Committed Psychotic Patients in 1948.*

Duration of Treatment of All Patients Discharged Home

The evaluation of treatment efforts in terms of discharge rates alone is not entirely satisfactory. It is equally important to ascertain the length of hospitalization prior to discharge. Figure 2 shows the percentage of the total number of patients dis-

*One was a patient with involutional psychosis who returned to the hospital and was transferred to another hospital for custodial care; another, manic-depressive, likewise returned and was transferred. Six were schizophrenic (4 were removed against advice), 2 of whom remained out of the hospital for a year "on visit" and were then discharged; 3 returned to the hospital and were again discharged home on visit and are still on visit. One patient returned to the hospital and was transferred to another hospital for custodial care. Of the remaining 6 patients, 5 had psychoses with the following diseases: multiple sclerosis, Alzheimer's disease, Wilson's disease, Addison's disease. One had psychosis with cardiorenal disease, and one had psychosis with mental deficiency. Three of these 6 patients were discharged from visit after one year; 3 returned to the hospital and were transferred to other hospitals.

charged home after various periods of hospitalization. Sixteen per cent were discharged within thirty days, 57 per cent within sixty days, and 75 per cent within ninety days. Ninety per cent were discharged home within six months after admission. The remainder (10 per cent) were hospitalized for more than six months.

Return to Hospital

The proportion of discharged patients returned to the hospital in the first year is shown in Figure 3. They are divided into three groups. Seventy-one per cent of the discharged patients remained out of the hospital for one year and were therefore legally dismissed from "visit."* Thirteen per cent

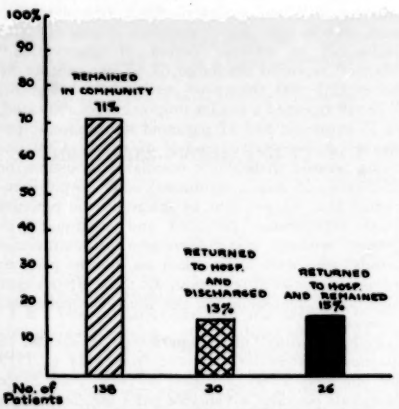

FIGURE 3. *Outcome of Trial Visit (for One Year, at Termination of Which Patient Is Legally Discharged) in 194 Committed Patients, 1947.*

returned to the hospital within the year and after further treatment (usually requiring less than three months) were again discharged on "visit." After remaining in the community a full year, this group also was dismissed from "visit." Therefore, 84 per cent of patients originally discharged from the Boston Psychopathic Hospital remained in the community for at least one year. Fifteen per cent of the original group returned to the hospital and after failing to respond to further treatment were transferred to other state mental institutions. (Previous studies have shown that about 40 per cent of patients transferred to other mental institutions are discharged home within one year.)

The results of another study, a two-year follow-up of 56 committed patients (first admissions with psychoses of psychogenic origin), shown in Figure 4, support the above figures. Ninety-two per cent were discharged from the Boston Psychopathic

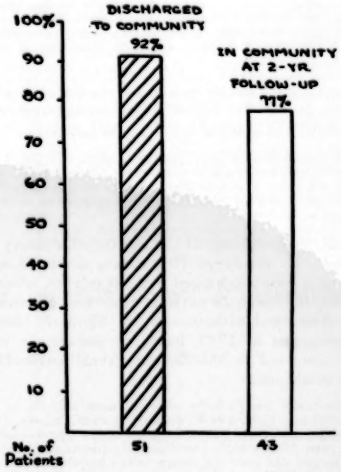

FIGURE 4. *Two-Year Follow-up of 56 Committed Patients with Psychoses of Psychogenic Origin (Admitted from July 1 to December 30, 1946).*

Hospital to their homes, and 77 per cent of the original number were still in the community at the end of the two-year follow-up period. Continuing studies will ascertain how long these patients remain at home; for the present it may be said that *the majority of patients suffering from acute "functional" psychoses are able to return home following treatment and to remain home for two years.*

DISCUSSION

This study has been limited to committed patients — those considered unquestionably psychotic. The criterion of treatment results was limited to "discharged home" or "remained in hospital," which has the advantage of both simplicity and objectivity. We have purposely avoided the criteria of "recovered," "improved" or "return to prepsychotic personality" because of their more subjective nature. From a pragmatic point of view the aim of a mental hospital is to enable the mentally ill to take part comfortably in social life.

*"Visit" is a trial period of release from the hospital of one year's duration during which the patient remains under legal commitment, thus allowing return to the hospital without further legal proceedings when return is indicated by his clinical condition. Visit may be terminated at any time at the discretion of the superintendent. Renewal of visit may be accomplished by return to the hospital for at least 24 hours. Discharge from visit occurs automatically one year after the date of the patient's last release.

Achievement of this is measured by the patient's ability to remain in the community.

The phenomenon of rising discharge rates from mental hospitals is reflected in historical perspective in the difference between the prognostic formula of the nineteenth century and that of today. The prognostic formula of the latter part of the nineteenth century was as follows:

> In round numbers, of ten persons attacked by insanity five recover, and five die sooner or later during the attack. Of the five who recover not more than two remain well during the rest of their lives. The other three sustain subsequent attacks during which at least two of them die.[1]

The formula of the United States Bureau of the Census, in its 1943 report, based on the aggregate statistics of all state hospitals, is as follows:

> For every ten patients admitted, three will die in the hospital and seven will be discharged. Of those discharged two will return to the hospital. Nearly half of all patients admitted to mental hospitals are discharged and need not return to the hospital.[2]

Thus, the prognosis of the nineteenth century indicated that for every 10 patients admitted only 2 patients were discharged without relapse, whereas in 1943, for every 10 patients admitted, 5 patients were discharged without relapse. Similarly stated, the prognosis in 1950, based on experience with cases admitted to the Boston Psychopathic Hospital, would read:

> For every ten patients admitted none will die in the hospital and eight will be discharged within ninety days. Of those discharged one will return to the hospital within one year. Nearly three fourths of all patients admitted are discharged and need not return to the hospital for at least one year.

Few reports appear in the literature comparing yearly discharge rates of given admitted cases over long periods of time. The annual reports of mental hospitals, departments of mental health and the United States Bureau of the Census provide most unsatisfactory statistical information. Discharge data are expressed in terms of total hospital population, which fails to show the discharge rates of patients admitted during each year. The picture is further confused by the inclusion of organic psychoses and psychoses of old age with those of unknown origin, usually called functional. Some published reports fail to differentiate the serious committed cases and those admitted merely for observation and diagnosis.

Reports based on discharge rates of patients admitted during a given year support the contention that discharge rates are on the increase. Discharge rates in four Maryland hospitals increased from 39 per cent to 55 per cent in the years 1944–1946.[3] The combined reports of three New Jersey hospitals showed a discharge rate of 70 per cent over a period of three fiscal years, 1944–1946.[4] Individual hospitals also report relatively high discharge rates. Warren State Hospital (Pennsylvania) compared its discharge rate in the early 1930's with that in the 1940's for admission of patients with psychoses other than those of old age; the figures were 58 per cent and 70 per cent respectively.[5]

The results of somatic therapies in particular psychoses have been reported by many authors. There is general agreement that these therapies have been of great benefit to psychotic patients. The effect in involutional psychosis has been especially outstanding. Discharges in the preshock era varied from 30 per cent to 45 per cent; with electric shock 75 per cent to 90 per cent can be discharged.[6-10] At Brooklyn State Hospital, insulin-coma treatment has led to the discharge of nearly 80 per cent of over 1000 schizophrenic patients.[11] Such patients also benefit from electric-shock therapy; 67 of 100 schizophrenic patients were discharged following electric-shock treatment and were able to stay out of hospitals during the one-and-a-half to six-year period of observation.[12] Martin[13] reported discharge of 59 per cent of 81 patients ill less than one year before treatment. Wilcox[14] reported a similar proportion rehabilitated, of 15 catatonic and 17 paranoid schizophrenic patients. A Norwegian study[15] of nearly 1500 patients treated with shock (cardiazol or insulin or cardiazol and insulin combined) in 17 hospitals reported that 63 per cent of schizophrenic patients (with hebephrenic, paranoid and catatonic syndromes without manic-depressive or confusional trends) who were ill less than six months prior to admission achieved remission. Of these, 76 per cent maintained remission for the four-year period of observation.

Pollock's study[16] of 3200 patients (200 each of 16 diagnostic categories) followed from 1914 to 1919 for one year after admission to New York State Hospitals provides a valuable basis for comparison of results obtained before active treatment methods were in use, with the results of present-day therapy. According to his figures, the discharge rate for all admissions was 42.14 per cent; the death rate was 23 per cent. For the functional psychoses, the discharge rate was 47 per cent and the death rate 13 per cent. In involutional psychosis, 34 per cent were discharged; 22.5 per cent died. In manic-depressive psychosis, 70 per cent were discharged and 10 per cent died; in schizophrenia, 32 per cent were discharged and 1.5 per cent died. Of the functional psychoses discharged home, about 20 per cent left the hospital within sixty days.

The Boston Psychopathic Hospital functioned primarily as a receiving hospital for diagnosis and disposition until 1943. After that date, emphasis shifted to treatment. The admission rate dropped considerably, and the number of patients remaining for treatment greatly increased. This change in function prevents comparative study of present discharge rates of the Boston Psychopathic Hospital with those of earlier years. Comparison, how-

ever, with the statistics reported by Pollock on admissions to New York State Hospitals for the years 1914 to 1919 discloses the striking fact that the Boston Psychopathic Hospital currently discharges twice as many patients admitted with functional psychoses as did the New York State Hospitals in the era antedating somatic therapy. Moreover, discharges were achieved in a much shorter period of time — 57 per cent of Boston Psychopathic Hospital discharges occurring within sixty days, as compared with 20 per cent in Pollock's report.

The experience of the Boston Psychopathic Hospital shows conclusively that mental hospitals, with the assistance of trained personnel and modern therapeutic methods, can return to the community a very large percentage of patients suffering from the major psychoses.

References

1. Bucknill, J. C., and Tuke, D. H. *A Manual of Psychological Medicine.* 562 pp. London: John Churchill, 1858.
2. Pratt, D. *Mental Health Statistics, n.d., National Mental Health Foundation.* 1520 Race Street, Philadelphia, Pennsylvania.
3. Meyer, H., and Preston, G. H. What happens to first admissions to state hospitals. *Am. J. Psychiat.* **104**:546-548, 1948.
4. Frankel, E. Outcome of mental-hospital treatment in New Jersey: statistical review of state mental-hospital activities. *Ment. Hyg.* **32**:459-464, 1948.
5. Israel, R. H., and Johnson, N. A. New facts on prognosis in mental disease. *Am. J. Psychiat.* **104**:540-545, 1948.
6. Bennett, A. E., and Wilbur, C. B. Convulsive shock therapy in involutional states after complete failure with previous estrogenic treatment. *Am. J. M. Sc.* **208**:170-176, 1944.
7. Cadbury, W. W. Electro-shock treatment in mental disorders. *Chinese M. J.* **66**:92-97, 1948.
8. Gralnick, A. Three-year survey of electroshock therapy: report on 276 cases; comparative value of insulin-coma therapy. *Am. J. Psychiat.* **102**:583-593, 1946.
9. Hamilton, D. M., and Ward, G. M. Hospital treatment of involutional psychoses. *Am. J. Psychiat.* **104**:801-804, 1948.
10. Huston, P. E., and Locher, L. M. Involutional psychosis: course when untreated and when treated with electric shock. *Arch. Neurol. & Psychiat.* **59**:385-394, 1948.
11. Temporary Commission on State Hospital Problems. *Insulin Shock Therapy.* 105 East 22nd Street, New York 10, New York.
12. Hamilton, D. M., and Wall, J. H. Hospital treatment of dementia praecox. *Am. J. Psychiat.* **105**:346-352, 1948.
13. Martin, P. A. Convulsive therapies: review of 511 cases at Pontiac State Hospital. *J. Nerv. & Ment. Dis.* **109**:142-157, 1949.
14. Wilcox, P. H. Electroshock therapy: review of over 23,000 treatments using unidirectional currents. *Am. J. Psychiat.* **104**:100-112, 1947.
15. Dedichen, H. H. Comparison of 1459 shock-treated and 969 non-shock-treated psychoses in Norwegian hospitals. *Acta psychiat. et neurol.* Supp. **37**:3-160, 1946.
16. Pollock, H. M. What happens to patients with mental disease during first year of hospital life? *State Hosp. Quart.* **10**:594-608, 1925.

THE CARIES-PRODUCING EFFECT OF SIMILAR FOODS GROWN IN DIFFERENT SOIL AREAS*

Abraham E. Nizel, D.M.D.,† and Robert S. Harris, Ph.D.‡

BOSTON

A STATISTICALLY significant higher incidence of dental caries has been produced in hamsters fed diets containing corn and dried whole milk produced in New England, in comparison to those fed similar foods grown in northwest Texas.[1] The present study was undertaken as a confirmation of these results, and to determine whether the cariogenic factor was in the corn or the milk, or in both.

Four groups, each containing 35 weanling hamsters, were assembled so that each group had equal distribution in terms of weight, sex and litter-mates. They were fed a modified Hoppert, Webber and Canniff diet,[2] consisting of corn (ground to 40 mesh fine) 63 per cent, dried whole-milk powder 30 per cent, alfalfa 6 per cent and sodium chloride 1 per cent. Distilled water was given *ad libitum*. The diets varied with respect to the source of the corn and milk as follows:

Group A: New England corn and New England milk
Group B: Texas corn and Texas milk
Group C: New England corn and Texas milk
Group D: Texas corn and New England milk

The animals were housed individually in metal cages with wooden floors and were fed their respective diets *ad libitum* for a period of seventeen weeks. Weekly weight records showed that all four groups grew well and at the same rate during this period.

At the end of the test period the hamsters were killed and the heads fixed in a 10 per cent solution of formalin and then dried and skinned; finally, the maxillas and mandibles were treated with a 3 per cent solution of hydrogen peroxide. To eliminate bias, the heads were boxed and marked by a code unknown to the dental examiner. The dental caries were scored according to the Keyes procedure.[3]

Table 1 reports the results of the dental caries examination of Groups A and B. The 43.1 per cent decrease of carious molars and the 50.9 per cent decrease in carious surfaces in Texas-fed hamsters over the New England-fed hamsters compared very closely to the initial findings[1] of 41 per cent less carious molars and 47 per cent less carious surfaces

*From Tufts College Dental School, Boston, and the Nutritional Biochemistry Laboratories, Massachusetts Institute of Technology, Cambridge.

Aided by a grant from the Charles H. Hood Dairy Foundation. The samples of corn and milk were obtained through the kind offices of the following: Dr. Kenneth C. Beeson, U. S. Plant, Soil and Nutrition Laboratory, USDA, Cornell University, Ithaca, N.Y.; Dr. Arthur C. Fay, H. P. Hood Company, Boston; Dr. B. W. Fairbanks, American Dry Milk Institute, Chicago; Dr. Paul H. Tracy, Department of Food Technology, University of Illinois; Dr. J. J. Willingham, Department of Dairy Manufacturers, Texas Technical College; and Mr. Roy L. Donahue, USDA Extensionist, College Station, Texas.

†Visiting Instructor in Clinical Dentistry, Tufts College Dental School.

‡Professor of Nutritional Biochemistry, Massachusetts Institute of Technology.

in the Texas-fed group. This duplication of results gives support to the idea that the cariogenic effect of these foods is related to the area where they were produced.[4, 5]

It may be suggested that these results are due to differences in fluorine. The fluorine content[6] of the milks from Texas and New England was found to be 2.9 and 0.3 parts per million respectively, and of the corns, 0.4 and 0.3 ppm respectively. The fluorine contributed by the corn and milk to Diet B is calculated to be 1.3 ppm, and that contributed to Diet A is calculated to be 0.3 ppm. It is not likely that the fluorine contained in Diet B was in itself sufficient to produce this difference, for McClure[7] reported that rats and hamsters required at least 10 ppm fluorine in the diet for caries inhibition.

Diets A and B were analyzed for thirteen nutrients, and only the riboflavin was found to be significantly different; it was approximately 30 per cent higher in Diet A.

Table 2 presents the dental-caries scores of Groups C (New England corn and Texas milk) and D (Texas corn and New England milk). There was no statistically significant difference in the caries index. This indicates that neither the Texas corn alone nor the Texas milk alone inhibited the dental caries.

The relation of all four groups to each other is shown in Figure 1. Groups A, C and D all exhibited a similar prevalence of dental caries, while Group B (fed both Texas corn and Texas milk) had a statistically lower caries score than the other three groups.

It appears from these results that the caries-promoting property of the New England foods outweighed any caries-inhibitory property of the Texas corn and milk, and that a mechanism operated in the New England foods that aided materially in production of dental decay. Investigations to determine whether this factor is organic or inorganic are contemplated.

TABLE 1. *Comparative Caries Score of Hamsters Fed Diets Containing Corn and Whole Dried Milk Produced in New England (Group A) or in Texas (Group B).*

	GROUP A (N. E.)	GROUP B (TEXAS)	DIFFERENCE IN MEAN	T VALUE OR CRITICAL RATIO	DIFFERENCE
No. of hamsters per group:					%
Male	14	11			
Female	15	17			
Mean no. of carious molars	4.52	2.57	1.95	3.604*	43.1
Standard deviation	±2.37	±1.57			
Standard error	±0.448	±0.302			
Mean no. of carious surfaces	5.83	2.86	2.97	3.246*	50.9
Standard deviation	±4.29	±2.20			
Standard error	±0.811	±0.423			
Mean size of area of carious molars	340	102	238	2.016†	70.0
Standard deviation	±551	±289			
Standard error	±104	± 56			

*Statistically significant to 1 per cent level.
†Statistically significant to 5 per cent level.

TABLE 2. *Comparative Caries Score of Hamsters Fed Diets Containing New England Corn and Texas Milk (Group C) and Texas Corn and New England Milk (Group D).*

	GROUP C N. E. CORN TEXAS MILK	GROUP D TEXAS CORN N. E. MILK	DIFFERENCE IN MEAN	T VALUE OR CRITICAL RATIO	DIFFERENCE
No. of hamsters per group:					%
Male	17	13			
Female	16	15			
Mean no. of carious molars	5.00	4.68	0.32	0.660	6.4
Standard deviation	±1.67	±2.00			
Standard error	± .295	±0.385			
Mean no. of carious surfaces	6.03	5.86	0.17	0.197	2.8
Standard deviation	±2.92	±3.61			
Standard error	±5.16	±0.694			
Mean size of area of carious molars	270	371	101	1	27.2
Standard deviation	± 402	±747			
Standard error	± 71	±144			

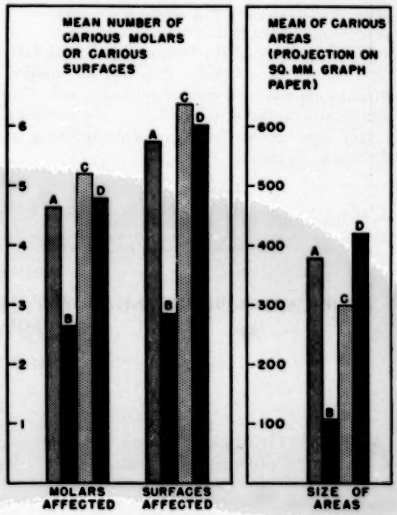

FIGURE 1. *Comparative Caries Experience of Hamsters.* (A) *New England corn and New England milk,* (B) *Texas corn and Texas milk,* (C) *New England corn and Texas milk and* (D) *Texas corn and New England milk in diets.*

REFERENCES

1. Nizel, A. E., and Harris, R. S. Effect of foods grown in different areas on prevalence of dental caries in hamsters. *Arch. Biochem.* 26:155-157, 1950.
2. Hoppert, C. A., Webber, P. A., and Canniff, T. L. Production of dental caries in rats fed adequate diet. *J. Dent. Research* 12:161-173, 1932.
3. Keyes, P. H. A method of recording and scoring gross carious lesions in molar teeth of Syrian hamsters. *J. Dent. Research* 23:439-445, 1944.
4. Nizel, A. E., and Bibby, B. G. Geographic variation of caries prevalence in soldiers. *J. Am. Dent. A.* 31:1619-1626, 1944.
5. Albrecht, W. A. Our teeth and our soils. *Ann. Dent.* 6:199-213, 1947.
6. Hodges, H. C. Personal communication.
7. McClure, F. J. Personal communication.

FIFTY YEARS OF MEDICAL PROGRESS

MEDICINE AS A SOCIAL INSTRUMENT: ORGANIZATION OF MEDICAL CARE

FRANZ GOLDMANN, M.D.*

BOSTON

THE twentieth century began with great prospects for continued progress in scientific medicine and with little public interest in the adaptation of medicine to social needs and uses. Fifty years later the power of science seemed to have no known limits, medicine as science and art had more to offer than ever before and social organization of medical care was an important object of public policy in every civilized country.

Events Leading to Change

The progress from a laissez-faire attitude to orderly organization of medical care, steadily accelerating during the period 1900 to 1950, was prompted by the rapid advance of scientific medicine and the profound socioeconomic changes caused by the technologic revolution. The conjunction of these two events made an involved problem of a once simple matter that barely aroused public attention.

The degree to which research in medicine and its underlying sciences broadened and deepened the knowledge of both etiology of disease and ecology, and thereby increased and improved methods of diagnosis and treatment, surpassed the high hopes kindled by the remarkable achievements of the nineteenth century. Within the brief span of a few decades medical care became more efficient, more complex and more expensive than it had been in the many centuries when the practice of medicine was an art based on little science. By itself this development would amply have justified determined efforts on the part of society to make medical care of the best possible standards available to all people at reasonable cost and to ensure adequate compensation for the members of the various health professions and for hospitals and related institutions rendering service. What made action doubly imperative was the extremely rapid development of technology, which created new problems and offered novel opportunities at the very time when scientific medicine was making vast strides. The extensive and deep-reaching economic and social changes resulting from the transformation of man's physical and social environment, and especially from the substitution of mechanical energy for human and animal energy and from urbanization, had a strong bearing on both the need and the individual ability to pay for comprehensive medical care of high quality. Startling improvements in communication and transportation reduced the obstacles of time and space that had formerly prevented many people from seeking or obtaining good medical care. An informed and articulate public in rural as well as urban communities, thrilled by the victories of medical science and worried by the mounting cost of comprehensive service in health and sickness, increasingly demanded determined efforts to bring adequate medical care within the reach of all at a price all could afford.

*Associate professor of medical care, Harvard School of Public Health.

Highlights of Recent Developments in the United States

In the second and third decades of the twentieth century the first field studies covering all major aspects of medical care were conducted under the auspices of voluntary and public agencies. Subsequently, many additional surveys were made, some limited to investigation into frequency and severity of illness among groups of people, others intended to obtain inventories and appraisals of resources for health service and still others designed to analyze and evaluate the services actually received by groups of people. These studies produced a wealth of original information and an abundance of confirmatory data on the size and scope of the problem of illness, the bearing of socioeconomic conditions on health and sickness and the effect of illness on the socioeconomic conditions of the individual, family, community and nation. They assembled a multitude of facts on the professional and auxiliary health personnel and the clinics, hospitals and related facilities available in the various states and in the country as a whole. They shed much light on the quantity, quality and cost of medical care actually received by persons in various socioeconomic groups and various types of communities that lacked the protection of medical-care programs and by persons eligible for the services of specific programs. The findings stimulated long-range planning as well as immediate local, state and federal activities for the extension and improvement of medical care.

In the latter part of this first half-century, society began to make use of these facts. Many and diverse national and state bills dealing with health service were passed in rapid succession, and numerous additional proposals were introduced in both Congress and state legislatures, some receiving extensive hearings. Long-established programs of medical

care were revised and improved; many new ones were initiated and rapidly expanded. Their variety would have amazed the proverbial visitor from Mars. The number of persons eligible for services or cash benefits under these programs increased extraordinarily. By 1950 more than half the civilian population was covered, in contrast to an insignificant proportion in 1900. However, the degree of protection afforded and the quality of service rendered left much room for improvement, as was freely admitted. Comprehensive medical care, including preventive services as well as treatment and applying to any health condition, was furnished to a few million persons only. Compared with the meager provisions available before, the services and cash benefits supplied by various programs in 1950 constituted a great improvement. Compared with accepted standards of quantitative and qualitative adequacy, they were deficient in most instances.

The total national expenditures for medical care of civilians rose from about $3,600,000,000, or $30 per person, in 1929 — the first year for which comprehensive data were gathered — to about $10,600,000,000, or $70 per person, representing 4.4 per cent and 4.9 per cent of the national income in those years. During this period both the general tax funds allotted for medical care of civilians and the monies obtained by means of insurance for this purpose rose sharply, constituting a steadily growing proportion of the total national expenditures for medical care of civilians.

In order to organize professional and hospital services for the persons covered by medical care programs, various patterns were developed systematically, some cast in the mold of tradition and some expressing new ideas. Methodical employment and compensation of physicians and members of related professions in independent private practice became a widely followed policy, full-time salaried hospital staffs were established in many communities and group-practice organizations were developed primarily outside of hospitals and later within hospitals, where the idea originated long before orderly organization of payment was visualized.

The continuous extension of established programs and the introduction of numerous new plans for medical care signify an important change in public policy in the United States. Up to the end of the nineteenth century, sanitation of man's environment, control of communicable diseases and provision of some treatment for the sick among a few narrowly defined and very small economic groups were the major objects of social action. In the first half of the twentieth century, more and more emphasis was placed on the development of medical-care programs as part of community health services — nongovernmental as well as governmental. By 1950 the broad objective to be attained in the future was fully apprehended and wholeheartedly endorsed by an alert citizenry. The goal visualized was the systematic organization of all the personal services by members of the various health professions and all the clinic, hospital and related facilities necessary to attainment of the highest level of health, prevention of disease, cure or mitigation of illness and reduction of disability, economic insecurity and dependency associated with illness.

Unity of purpose, however, was not accompanied by agreement on methods. Bitter controversies raged over both organization of payment and organization of service. The search for a satisfactory solution to the admittedly intricate problem was complicated by a growing tendency toward the use of slogans, such as "socialized medicine," "the voluntary way is the American way," "the reactionary medical profession," and so forth, when it was urgently necessary to concentrate on scientific evaluation of existing resources and programs, systematic determination of unmet needs and intelligent debate on the best methods of achieving the end desired by all.

Another disturbing factor was the indiscriminate introduction of economic terminology into the literature on and administration of medical-care programs. The widespread use of such phrases as "producers and consumers of medical care" or "payments to vendors of medical care," apart from raising a question of semantics, reveals disregard of both the nature of professions and the basic problem to be solved. Medicine is a profession, not a trade; medical care is a professional service, not a commodity. The issue is organization of both service and payment with due regard to the characteristics of professional work, rather than the mass distribution of price tags to be pinned on items available for purchase.

As always in times of transition, divergent views were competing for public attention. There were the standpatters, rejecting anything new, just as the adversaries of Galileo had consistently refused to look through the telescope. There were the cunctators, whom Benjamin Franklin once likened to St. George on the signs, always on horseback and never riding on. There were the "liberals," anxious to move onward but uncertain about the direction. There were the celestial bus riders, so deeply fascinated by the sky that they overlooked such earthly details as psychological preparedness of the public and administrative prerequisites for introduction of vast new schemes. The cross-currents of opinion made it difficult for statesmen within and outside the health professions to steer a course that, in the words of Carl L. Becker, would "reconcile the desirable liberties of the individual with the necessary power of government in such a way as to do justice as well as may be to the desires

and the interests of all individuals and classes in society."

Legislation

In the 'thirties and 'forties Congress, as well as the state legislatures, adopted many measures dealing solely with medical care or passed omnibus bills containing such provisions. In tempo and variety state legislation far exceeded national legislation. One group of laws included numerous federal and state acts requiring or authorizing establishment and maintenance of certain programs administered or supervised by public agencies. A second category comprised a large number of state laws permitting and regulating certain activities in the field of medical care under the auspices of voluntary associations, especially the initiation and operation of voluntary insurance plans. There appeared a strong tendency to enact or amend special laws, each dealing with one segment of the total health problem, and to foster a national health policy through federal legislation based on the principle of federal-state co-operation.

Major Types of Programs

According to methods of financial support and administrative organization, the programs in operation at present may be classified in three categories: public medical care, financed by general tax funds and administered by public agencies; voluntary medical-care insurance, financed through earmarked regular prepayments by subscribers only, employers only, or employees and employers jointly, and administered by voluntary organizations; and social insurance, financed mainly by "premiums" paid by employers and supervised, and in some instances also directly administered, by public agencies. In addition, a few industrial programs are supported entirely out of company resources without application of the principle of insurance.

Programs of public medical care, inconspicuous in 1900, have come to occupy an important place in the social scene. They are of two basically different types. One category is designed for the medical care of persons belonging to certain socioeconomic groups; the other provides medical care in line with efforts to control certain diseases of socioeconomic importance. The major groups covered by the first type are war veterans, merchant seamen, the medically needy and recipients of public assistance. The principal diseases attacked through special programs of medical care are communicable diseases — especially tuberculosis and venereal diseases — psychiatric disorders, physical handicaps, dental diseases and malignant tumors. Additional diseases brought within the scope of public programs in some states include alcoholism, heart disease and "chronic diseases" in general.

Voluntary medical-care insurance, used on a very small scale since the middle of the nineteenth century, expanded greatly in the thirties and grew rapidly in the forties, aided by employer-contributions to the cost. The organizations existing in 1950 may be classified as cash indemnity plans, allowing stipulated sums of money up to a certain maximum toward the insured's expenses for specified professional services, hospital care or both; service plans providing members of the organizations with specified professional and institutional services on the basis of contractual agreements with both subscribers and participating physicians and hospitals; and plans offering both indemnification and service, subject to certain conditions.

Workmen's compensation, providing for medical care together with compensation for loss of income due to disability or death in the event of occupational accident and disease, was introduced in 1908 for certain employees of the Federal Government and subsequently developed through state legislation, the first states enacting such laws in 1911 and the last one in 1948. In California, by a law enacted in 1949, compulsory insurance against the cost of hospitalization was initiated for all workers covered by compulsory unemployment insurance.

The growth in the number and variety of organized programs during the first half of this century was well-nigh sensational. However, multiplication of separate programs, each limited to a narrowly circumscribed disease, a certain socioeconomic group or a type of service, is not without peril, as diseases are almost innumerable, socioeconomic groups many and professional and institutional services legion. If carried too far, such a policy inevitably results in a hodgepodge of programs, vastly differing in eligibility requirements; type, scope, amount and period of provisions; methods of financing; organization of professional and hospital services and administrative organization. This danger was recognized in the 'forties. Criticism was increasingly directed against continuation of the "categorical approach" in extending public medical care, against the policy of establishing separate voluntary insurance programs for each major type of medical care and against the creation of a bewildering variety of unco-ordinated agencies administering the host of medical-care programs under public and voluntary auspices. The demand for concerted effort to bring order out of chaos became more insistent with the advent of each new plan for organization of medical care, but only patching and mending were done.

At the turn of the century an insignificant number of people were protected against the cost of illness by some (usually very limited) provisions. At the end of 1949 programs of public medical care were available to more than 25,000,000, voluntary medical-care insurance plans to about 66,000,000 and medical care under workmen's compensation laws to about 40,000,000 persons. These figures

denote eligibility and must not be added for the purpose of determining the total population served. A large proportion of these persons were covered by different programs for different health conditions to different degrees. The extent of these duplications or triplications was not reliably known, but certain facts could be taken for granted. Employees covered by workmen's-compensation laws constituted a substantial fraction of those enrolled in voluntary medical-care insurance plans, many persons were insured under two or more voluntary plans and many of those entitled to public medical care also had some kind of insurance against costs of medical care. In the aggregate the persons eligible for service under one program, or under two or more combined, constituted more than half the civilian population.

The increase in coverage of population during the period 1900-1950 was extraordinary. But the test of the value of medical-care programs is the degree of protection afforded and the quality of service rendered, rather than the number of persons covered. A scientific appraisal of medical-care programs must determine the type of health conditions covered, the type, scope, amount and period of provisions offered and the quantity and quality of service actually rendered. The medical care received must be measured against the standards of adequacy set by the professions involved, taught by the leaders in the field and met by the most advanced organizations. The following statements summarize pertinent information contained in descriptive material, administrative reports and special studies.

The provisions for war veterans apply to any service-connected disability without restrictions and also to non-service-connected disabilities, diseases or defects requiring hospitalization, provided that the veteran "is unable to defray the necessary expenses therefor." Each of the special public programs for the control of diseases is strictly limited to one group of diseases or defects. The general programs of public medical care for recipients of public assistance and the "medically needy" (that is, persons able to maintain themselves but unable to pay the full cost of the services needed), rely on the specialized programs for the control of certain diseases in cases lying within the province of such programs. With this qualification, some programs — probably the minority — extend their provisions to any type of illness regardless of stage, and others confine their activities to acute conditions requiring general hospital care and to prolonged illness requiring institutional care.

The voluntary medical-care insurance plans furnish service or indemnification for nonoccupational illness and accident and often for maternity also. Almost all list a widely varying number of diseases, defects or disabilities barring applicants from acceptance or excluding members completely or partly from prepaid service. The majority are limited to certain health conditions; many place restrictions on the amount or period of service in cases of specified types of disease. The provisions for medical care under the workmen's-compensation acts apply to occupational accidents as a rule, and to a varying number of occupational diseases in the majority of instances.

In type, scope, amount and period of provisions the existing programs differ greatly. A large proportion of the persons covered, probably one out of two, are eligible for cash benefits only, if stricken by nonoccupational disease or injured in a nonoccupational accident. As a general rule the indemnification is subject to limitations on the total amounts allowed for specified types of expenses, on the number of reimbursable services, on the period of payment per case of illness or per year and on the total sum allowed during a period of disability or in the course of a year. Of the programs furnishing direct service, the minority provide all the essential professional and institutional services in the amount and for the period required; others are limited to one type, such as hospital care, or to one group of professional services, such as those for hospitalized patients. Still others impose restrictions on the period for which medical care is furnished or the amount of service, or on both.

Accurate information on the amount and quality of medical care actually received by those eligible for service is available for a few programs only. Noteworthy for their achievements in rendering service of qualitative as well as quantitative adequacy are the program of the Veterans Administration, the crippled-children's programs in the majority of states, a small number of group-practice prepayment plans and the programs for students at a few universities. Other programs, especially the voluntary insurance plans for hospital care known as Blue Cross plans, have made great strides toward the goal of furnishing quantitatively sufficient care in general hospitals for participants with acute conditions. The programs for the recipients of public assistance provide certain types of service or grant a limited money allowance to persons constituting from less than 10 per cent to more than 40 per cent of those accepted for public aid. Outside large cities the provisions for this group consist primarily of hospitalization and care in institutions of the custodial type, with home care by physicians, nurses and others, office care by physicians and dentists and clinic care playing a minor role. All evidence supports the statement that the total services rendered to recipients of public assistance in the majority of communities fall far short of both quantitative and qualitative standards. Moreover, hospitalization is often furnished more frequently and for longer periods than medically necessary, owing to the poor socioeconomic conditions of the sick

or the absence of other equally effective and less costly health services.

In summary, almost all programs are limited in scope, amount and duration of service or cash benefits or in application to type or stage of illness or accident, or in both. Comprehensive medical care, including preventive services as well as treatment and applied to any health condition, is furnished to a few million persons only, and then under several separately administered programs. Compared with the scant services haphazardly rendered in 1900 and the meager provisions available in 1930, the services and cash benefits supplied by the various programs in 1950 constitute a great improvement. Compared with accepted standards of quantitative and qualitative adequacy, they are deficient in most instances. Moreover, a large proportion of the population, especially persons in rural areas and those in the lowest income groups, are neither covered by insurance programs nor protected by public medical care except in the case of certain diseases, generally those considered "dangerous to the public health."

As the history of social movements shows, pressure for progress first results in expansion, rather than growth in depth, and later, with increase in quantitative gains, leads to more emphasis on quality. The development of the social organization of medical care followed the same course. Its admirable achievements and serious deficiencies clearly indicate not only the importance of both "payment organization" and "service organization" but also their interdependence.

Organization of Payment

The characteristic features of the evolution up to 1950 were the emphasis placed on systematic organization of payment for medical care and the employment of two basic methods in combination — general taxation and insurance.

General tax funds, long used to pay for some professional and hospital services for some people, were made available in increasing amounts to maintain the expanding programs of medical care. In the period from 1929 to 1949 these funds grew from $500,000,000 to $2,500,000,000, and their proportion of national expenditures for medical care of civilians rose from approximately one seventh to about one fourth.

The method of insurance, rarely employed at the turn of the century, came into wide use through development of voluntary medical-care insurance and of workmen's compensation, the first type of social insurance to be introduced. In 1949, about $700,000,000 was paid by commercial companies and nonprofit voluntary plans offering insurance against specified costs of medical care, in contrast to almost no such expenditures in 1900. These payments accounted for less than one sixteenth of all national expenditures for medical care of civilians and for approximately one ninth of all private expenditures for this purpose. The monies spent under workmen's-compensation laws for medical care of eligible persons were estimated at close to $200,000,000 in 1949, as compared with about $70,000,000 in 1929 and with no such expenditures before 1908.

At mid-century all signs pointed to the conclusion that in the future tax funds would continue to be used on a mounting scale and that insurance funds derived from regular prepayments would make up an increasing share of all national expenditures for medical care of civilians, gradually replacing direct payments by the sick. The extent to which these two basic methods of raising funds should be employed side by side and the form in which the principle of insurance should be applied in the future were questions debated with much acrimony. In the center of the controversies was the issue of compulsory versus voluntary insurance. The proponents of the compulsory method maintained that a legal requirement that all or most employed and self-employed persons should contribute to the cost of their own medical care in proportion to their incomes would be superior to the voluntary method of raising funds, with its natural limitations. It would greatly increase the total financial resources and would thereby not only support more service for more people without acquisition costs but also reduce the amount of general tax funds for operation of medical-care programs. The advocates of "the voluntary way" questioned both the feasibility and the potential value of compulsory programs, in the light of grave administrative problems (especially the danger of "political medicine") and tremendous differences in the socioeconomic conditions in the country. However, many admitted the necessity of relying on general tax funds for the purposes of aiding nonprofit voluntary insurance plans in extending and improving their services to self-supporting persons and of paying for medical care of groups not covered by voluntary insurance plans. The alternative ways of organizing payment for medical care on a nationwide basis, then, were two: compulsory medical-care insurance together with limited use of general tax funds and voluntary medical-care insurance subsidized out of general tax funds and operating in conjunction with an extended system of tax-supported services. Obviously, the demarcation line between the voluntary and compulsory methods of raising funds would become hazier with progressive increase in the subsidies that the taxpayers would be compelled to provide for the expansion and improvement of voluntary medical-care insurance.

Congressional Bills

Interest in legislation concerning medical-care insurance began in 1913, due largely to the efforts of the American Association for Labor Legislation,

and continued to grow until 1920. It was then that the American Medical Association, repudiating the stand taken earlier by some of its prominent members, first stated its opposition to any compulsory system. After a lull in the controversy, the subject attracted renewed attention during the depression. From the second decade to the end of the 'thirties, legislative efforts had centered in the states. In 1939 the first Congressional bill, known as the Wagner Bill, was introduced. In the 'forties, avalanches of proposals pertaining to medical-care insurance descended on both Congress and state legislatures, but the Congressional bills were in the spotlight. Their very number testifies to the deep public interest in the matter. Their diversity indicates both profound disagreement on methods of developing medical-care insurance and eagerness to end the impasse by a compromise.

The contents of these bills would be of historical interest only, were it not for the fact that the main principles advocated in the past are certain to reappear in future proposals. It seems appropriate, therefore, to analyze the basic policies recommended by the sponsors of various bills introduced in, and shelved by, the Eighty-First Congress. These proposals for federal legislation are of three principal types. One category includes several bills for the introduction of compulsory insurance, the second comprises many proposals for financial aid to voluntary insurance plans and the third consists of a number of bills proposing the authorization of larger deductions of medical-care expenses under the federal income-tax law.

The bills proposing the compulsory method of raising funds for the support of a universal system of medical-care insurance are alike in three respects. They would cover all employed and self-employed persons and certain of their family dependents, they would apply the contributory principle to the employed and self-employed and require employers to share in the prepayments and they would use the funds primarily for the purpose of paying members of the health professions in private practice and nongovernmental as well as governmental hospitals for specified services rendered to the insured. The main difference in the major bills lies in the extent to which service would be covered by prepayments. One proposal would make the services of the program available without restrictions. Another, intended to curb "excessive demand," would require the insured to make direct payments for services involving costs up to $50 and would provide coverage for all other services.

All the bills calling for aid to voluntary medical-care insurance plans would resort to general tax funds to enable voluntary organizations to offer more service to more persons at reasonable charges. According to one proposal, "assistance to voluntary nonprofit prepayment health service plans" would be given through federal grants to the states. The general tax funds allotted would defray a certain percentage of the actual expenses of voluntary plans meeting state requirements and approved for subsidies. A second proposal aims at reinsurance of heavier "losses" by reimbursing approved nonprofit organizations for two thirds of all expenditures exceeding $1000 per subscriber per year. A "Federal Health Insurance Corporation" would match amounts to be paid by the nonprofit organizations. Limitation of provisions to certain economic groups is recommended by a third group of bills. Under one proposal, every person whose gross family income does not exceed $5000 a year would be granted insurance on an annual basis upon written application and payment of the prescribed premiums; this program would be operated by a "National Health Insurance Board." Another bill proposes coverage of the so-called low-income groups with state responsibility for direct administration. The states would be offered federal grants-in-aid for the general purpose of "extending medical, hospital, and dental services to individuals unable to pay the whole cost thereof." States desiring to take advantage of federal funds would be required to meet certain conditions, including establishment of a state-wide program designed "to encourage the development of voluntary medical, dental, and hospital insurance plans operated not for profit." They would be authorized to use general tax funds for "payments . . . to any voluntary medical, dental, or hospital insurance plan or other plan operated not for profit" on behalf of persons "unable to pay the whole cost," but in such a case would be required to contribute to the expenses according to a formula for federal-state cooperation. Similar in general policy but more specific in details is another bill calling for federal grants-in-aid to the states to pay subscription charges of voluntary nonprofit plans for persons with low income. The states would issue "service cards" to individuals "certified as unable to pay all or part of . . . charges," would be required to show "over-all participation" in the cost and would receive federal funds on the basis of a formula varying with per-capita income and ranging from 33⅓ per cent to 75 per cent of the cost.

An entirely different approach is recommended by a fourth group of closely related bills. Under one proposal, federal grants and loans would be made "to cooperatives and nonprofit associations, operating medical and hospital-care plans, for the acquisition, construction, and equipment of needed facilities," and under another proposal "farmers' experimental health cooperatives" would receive assistance "to initiate and carry out experimental plans for providing comprehensive medical care for their members." Finally, the major bill proposing compulsory insurance would give aid to "farmers' experimental health cooperatives" for surveys, construction of physical facilities and

maintenance during the initial period and in addition would make use of voluntary plans for service under the national program.

In contrast to all the bills discussed before, the proposals for more liberal treatment of medical expenses under the federal income-tax law recommend a circuitous route to the goal of easing the financial burden of illness. At present taxpayers have the right to deduct medical expenses exceeding 5 per cent of adjusted gross income, but not more than $1250 for an individual, $2500 for a couple and proportionately higher amounts for married persons with several dependents. One proposal would permit deduction of a maximum of $150 of the annual charges paid to nonprofit prepayment plans listed as co-operating. Another would declare all expenses, rather than the part exceeding 5 per cent, deductible for persons in low-income groups and would use a sliding scale for those in the higher-income groups. A third proposal would remove the present 5-per-cent limit and would permit any taxpayer to deduct all medical expenses up to a maximum; still another would authorize deduction of a certain percentage of insurance premiums from the income tax rather than from adjusted gross income. Some of these proposals would apply to nonprofit insurance plans only; others would include commercial plans as well.

Organization of Service

Creation and improvement of an effective "service organization" is no less important to the establishment and operation of an efficient and economical medical program than is an orderly arrangement for financial support. The interdependence of these two principles has been increasingly recognized since the 'thirties. Several methods of service organization, all dating from earlier times, have come to be widely employed, and a few new patterns have evolved. Despite great differences in approach they all aim at the same goals: the systematic organization of the services of professional and auxiliary personnel and of clinics, hospitals and related facilities, and the regular employment of definite methods for the compensation of those rendering service.

Extending a custom of long standing, many official agencies, as well as the majority of all voluntary agencies, have placed the emphasis on utilization of the services of physicians and members of related professions in independent private practice. They offer any duly licensed member of a health profession in a given area the opportunity to participate in programs, and accordingly grant the persons eligible for service the right to select any of the physicians or others on the roster of participants. The arrangements range from informal working relations at the local level to written agreements at the state level. More recently has appeared a tendency to substitute collective agreements, negotiated between professional associations and administrative agencies, for the old policy of making individual contracts with some physicians, dentists and others.

At the same time, full-time hospital staffs, rare and rudimentary in 1900, were built up, especially in teaching hospitals. These were increasingly utilized for service to both in-patients and out-patients covered by certain programs, such as those for veterans, merchant seamen and students at institutions of higher learning, and occasionally for home care to the needy and medically needy or for all types of service to members of voluntary prepayment plans.

The simultaneous development of these two entirely different patterns, accompanied by a tendency to bar the general practitioner from the hospital, rather than from certain procedures in the hospital, inevitably resulted in friction and raised the problem (among many others) of co-ordinating the work of full-time hospital staffs with that of physicians and related groups in private practice. The Veterans Administration was outstanding among the agencies moving toward a solution of this problem. In recent years it employed many private consultants for hospital work and a large number of physicians and dentists in private practice for service to out-patients under "Home Town" plans.

The method of group practice, in occasional use since the end of the nineteenth century, gained ground in the 'twenties and was more frequently employed in the 'forties. Group practice organizations furnishing fairly comprehensive service to members of voluntary insurance plans were first established at a small number of industrial companies and at a few universities, later by consumer co-operatives and groups of physicians in private practice and recently by a few labor unions and by a community organization in New York City. Occasionally such organizations are also utilized by public agencies for service to the needy and medically needy. There was no disagreement about the principle of teamwork by a smaller or larger number of physicians and members of related professions working together in systematic association and using a medical center as headquarters. What caused conflicts between medical societies and group-practice organizations was the combination of organized prepayment plans with group practice. At the core of this problem is the fact that such organizations constitute serious competition to physicians in individual practice in the same community. To cope with the situation, the American Medical Association twice amended its Principles of Medical Ethics. In 1934 it adopted a set of seven conditions making "contract practice," and with it group practice, "unethical," and thereby erected formidable barriers to experimentation with this method. In 1949, it greatly liberalized the pertinent section of the ethical guide and also dropped

the earlier statement that declared a contract unethical "if free choice of physician is prevented." Despite this change in attitude, however, most of the group-practice organizations connected with voluntary prepayment plans continued in disfavor, and only a few received official approval from medical societies. Thus a paradoxical situation arose. Organized medicine preached the virtues of the voluntary way but except in a few states, notably Massachusetts and Wisconsin, and in the District of Columbia, made it difficult for voluntary medical-care insurance plans to co-operate with voluntary groups of physicians possessing unquestionable professional qualifications. Legislators, however, were anxious to pave the way for wider development of group-practice prepayment plans. Many of the recent Congressional bills contained references to group practice, and in the 'forties a few states passed legislation permitting formation of nonprofit voluntary associations operated on the basis of group practice and prepayment.

At present, private practitioners in individual practice constitute the majority of all physicians and dentists rendering direct service under medical-care programs. The basic methods employed for their compensation are, in order of frequency: the fee-for-service system, usually providing for standard fees set forth in special fee schedules; the part-time salary system; and the flat-rate method, with payment based on units of time actually spent, clinic sessions actually held or, occasionally, the number of persons on the list of individual physicians during a certain period. The rates of payment under these methods vary greatly in various parts of the country, and the compensation allowed for the same type of service under the same method of payment differs from program to program even within the same area. The total income from service under medical-care programs has become substantial for a growing number of private practitioners; this has strengthened the economic status of those formerly giving much of their skill and time with little or no financial return.

Physicians, dentists and other professional persons holding full-time salaried positions have increased numerically and proportionally in the last twenty years but constitute the minority of all those rendering service under the existing medical-care programs. Many are on the staffs of hospitals — primarily governmental and less frequently nongovernmental hospitals. A smaller number are affiliated with voluntary organizations, mainly nonprofit associations sponsoring medical-care insurance programs. This group includes most of the physicians engaged in group practice.

By 1950, the period of rapid change in service organization was by no means ended. With the adoption of a national hospital policy in 1946, the foundation had been laid for the creation of a hospital system throughout the country, designed for all the people, comprising nonprofit voluntary as well as governmental hospitals, and integrating the various types of hospitals and related facilities. The future pattern of organizing the services of physicians and members of related professions will unquestionably be influenced by the pace of advance toward three objectives: regional organization of hospitals meeting quantitative and qualitative standards, transformation of general hospitals with a few specialized departments into institutions equipped for all major types of service and development of hospitals as centers of medical care, professional education and medical research. Whether the years to come will be a period of unmixed blessing or of unmixed evil will largely depend on the success or failure of methods of organization designed to assure high quality of medical care. Buildings without brains are of little avail. Overemphasis on hospital care and specialist services and discouragement of general physicians' services is a policy that can lead to great difficulties. Co-operation of general physicians and specialists within and outside hospitals, as well as of small hospital-like institutions and large medical centers in the same area, must be obtained. The prerequisites of such co-operation are self-discipline and readiness of each one to make a small sacrifice in the interest of all.

Progress in What?

The clash of ideas and armies at the beginning of the second half of the twentieth century left little time for cogitation on the meaning of recent progress in medical care. But it did raise grave doubts about the validity of Descartes' aphorism: "Si l'espèce humaine peut être perfectionnée, c'est dans la médicine qu'il faut en chercher les moyens." Life had become much safer, thanks to science and its wide application to the prevention of disease and the treatment of illness. The average life span had doubled in many parts of the world in the last fifty years and was certain to increase in the future, with the resultant creation of countless new problems. At the same time life had become less and less secure, due to the technologic revolution set in motion by scientific research. The species *sapiens* of the genus *homo* had gained physically but had not changed mentally. Human nature had remained essentially as it was in the distant past. Prophets of gloom merely noticed what T. S. Eliot expressed in the words "All our knowledge brings us nearer to our ignorance." Apostles of faith were confident that science and medicine would unveil the mysteries of the mind and make medical care still more effective.

CASE RECORDS OF THE MASSACHUSETTS GENERAL HOSPITAL

Weekly Clinicopathological Exercises

FOUNDED BY RICHARD C. CABOT

TRACY B. MALLORY, M.D., *Editor*

BENJAMIN CASTLEMAN, M.D., *Associate Editor*

VIRGINIA W. TOWNE, *Assistant Editor*

CASE 37101

PRESENTATION OF CASE

A sixty-eight-year-old cigar maker was admitted to the hospital because of dyspnea and mental confusion.

He had been in good health until eight months prior to admission, at which time he had noted the onset of a dry, hacking cough. When the cough was productive, it produced only a small amount of white mucoid material. Six months before entry he noted the onset of easy fatigability and malaise; this was constant and increased over the months. Shortly after this he began to experience low-back pain, usually precipitated by lifting, which radiated to the iliac crests and would last for several hours at a time. Two months ago he consulted his doctor because of persistence of the back pain. At that time the cough was still largely nonproductive, and he had lost no weight. Hot packs and a liniment were prescribed and a reducing diet was suggested. Over the following three weeks he lost fifteen pounds and also experienced some relief from the back pain. Five weeks ago he noted the onset of exertional dyspnea; shortly afterwards he had an episode of hemoptysis during which he coughed up about a dozen dark-red clots. He consulted his doctor again and was sent to the Medical Clinic of this hospital. Physical examination at that time was negative aside from bronchovesicular breath sounds over the right base. Examination of the urine was negative. A chest roentgenogram showed marked cardiac enlargement, with a cardiac-thoracic ratio of 18:31 cm. The aorta was slightly enlarged and quite tortuous. There was free fluid within the right chest, level with the anterior end of the fifth rib. Vascular markings were prominent in both lung fields. He returned home to the care of his local doctor. The dyspnea increased, but there was no further hemoptysis. He began to find it necessary to use two pillows instead of one to sleep. He was digitalized by his doctor but without improvement. He stated that he now had to stop two or three times while walking one block and was having difficulty climbing stairs. He had no chest pain. Five days before admission, without noticeable increase in the dyspnea, he began to see "black bugs" and other insects in the air and to talk unintelligibly to his wife. This mental confusion persisted, without localizing signs or symptoms. Three days later the dyspnea increased and he complained of some dull epigastric pain not related to meals. The mental confusion became worse, the dyspnea increased and he was brought to the hospital.

He had had no serious illnesses prior to the onset of the present illness. He had no known exposure to industrial toxins except tobacco dust, to which he had been exposed for twenty-five years.

Physical examination showed a somewhat confused, acutely ill man in some respiratory distress. There was dullness to percussion over the entire right chest, with bronchial breathing. Moist rales were heard over the left base. The heart was enlarged to the midaxillary line. The sounds were obscured by the noisy breathing, but there was thought to be a systolic murmur at the apex. The abdomen was distended but otherwise normal. There was no peripheral edema and no palpable masses. There were no localizing neurologic signs.

The temperature was 103°F., the pulse 80 and the respirations 40. The blood pressure was 150 systolic, 80 diastolic.

Examination of the urine was negative. Blood studies showed a hemoglobin of 16.0 gm. and a leukocyte count of 15,000, with 79 per cent neutrophils. The nonprotein nitrogen was 24.0 mg. per 100 cc.; the serum sodium was 142.6 milliequiv. and the serum chloride 97 milliequiv. per liter. A roentgenogram of the chest showed that three fourths of the right pleural cavity was full of fluid that obscured the lung markings (Fig. 1). The left lung root was prominent.

The patient was started on a course of penicillin and streptomycin, but in spite of this the temperature stayed between 101 and 102°F. He was continued on maintenance doses of digitoxin. He remained dyspneic and confused. The cough was usually nonproductive; there was no hemoptysis. Fifteen hundred cc. of pink fluid was removed from the right chest. On culture no organisms were grown. On the sixth hospital day, while straining on the bedpan, the patient suddenly developed twitching of the right leg, which progressed up the right side of the body. He became moderately cyanotic and lapsed into coma, with a drop in respiratory rate from 48 to 14; shortly after this he died.

Differential Diagnosis

Dr. Gordon Myers*: I should like to begin by seeing the x-ray films.

Dr. Stanley M. Wyman: The original films show a moderate quantity of fluid in the right pleural space, rising in the axilla and obscuring the right leaf of the diaphragm and the costophrenic angle posteriorly. The chest is increased in anteroposterior diameter, suggesting diffuse emphysema. The heart shadow is considerably enlarged, apparently in all chambers. There is a tortuous aorta. I am unable to say that there is an enlarged or dilated aorta, however. There is a discrete scar in

Figure 1.

the left upper lung — possibly the result of old tuberculosis. The hilar vascular markings are increased in prominence; there is also some extra density overlying the lower portion of the right hilus, the nature of which is not clear. There may be some decrease in size of the lower lobe, possibly because of the fluid in the right chest. The later films, made in the supine position, demonstrate less fluid at this time than there was previously.

Dr. Benjamin Castleman: Was that after the chest was tapped?

Dr. Wyman: It may have been. One of the vertebral bodies has a peculiar appearance, but I am unable to make any definite statement about it. It may be lung markings superimposed on the vertebral body.

Dr. Myers: Do you think there is fluid on the left side of the chest as well as on the right?

*Assistant in medicine, Massachusetts General Hospital.

Dr. Wyman: Not appreciably. The costophrenic angle laterally and posteriorly seems quite sharp.

Dr. Myers: Can you make out the left border of the heart?

Dr. Wyman: I can place it only approximately in these films. I think it is a large heart. I cannot say that the enlargement is all due to a heart condition and not to pericardial effusion.

Dr. Myers: Are you impressed with the vascular markings in the left chest?

Dr. Wyman: I think the left hilus and proximal vascular shadows are prominent, but not so striking as those on the right side.

Dr. Myers: Can you say anything about the size of the liver?

Dr. Wyman: I cannot help you on the liver.

Dr. Myers: You do not see anything that definitely suggests the scar of an old pulmonary infarct?

Dr. Wyman: No.

Dr. Myers: I should like to ask two questions. Was an electrocardiogram done on this patient?

Dr. Castleman: No.

Dr. Myers: Is anything known about the fluid in the chest other than that it was pink in color and that the quantity removed was 1500 cc.?

Dr. Castleman: It was loaded with red cells, but a count was not done.

Dr. Myers: It would have been helpful to know whether there were tubercle bacilli or malignant cells in the fluid.

When I first read this history, it occurred to me that the patient might have had primarily a noncardiac disease. I wondered if the patient suffered from a carcinoma of the lung with metastases to the spine and brain, with involvement of the pleura to account for the pleural effusion, and possible involvement of the heart itself, with either pericardial effusion or metastases to the myocardium to account for the cardiac enlargement. I doubt that I can make too convincing a story for that after seeing the size of the heart, unless there was complicating cardiac disease. However, I do not want to exclude that possibility yet. I would like first to discuss the possible diseases of the heart itself.

The history began eight months before entry, apparently with cough. Cough may be a first symptom of congestive failure. This was followed by easy fatigability and malaise, which are nonspecific symptoms, and finally by low-back pain. The low-back pain cannot be definitely explained by any cardiac disease with which I am acquainted. It is interesting that the patient had lost no weight until he was told to go on a reducing diet; the weight loss in that short period of time was remarkable. This could represent loss of fluid — possibly because the sodium intake was restricted at the same time. It is noteworthy that the back pain was not completely relieved by the loss of weight. Five weeks before the present admission

there was exertional dyspnea, followed by hemoptysis. Hemoptysis caused solely by congestive failure of the lungs of short duration would be most unusual. It is not uncommon with mitral stenosis or other conditions that lead to long-standing pulmonary hypertension, but it is uncommon in patients who have, for example, hypertensive or coronary-artery disease with pulmonary congestion. That makes one wonder if it was the result of pulmonary infarction. He did not have chest pain, however. Furthermore, the only finding in the Medical Clinic was bronchovesicular breath sounds over the right base. I am curious to know how the patient's illness was interpreted at the Medical Clinic. At that time the urine was normal, the chest examination showed marked cardiac enlargement and the x-ray films demonstrated prominent vascular markings in both lung fields. After further trouble with dyspnea and orthopnea he was digitalized, but with no improvement. Ordinarily, the patient with congestive failure who is digitalized for the first time does show improvement. Occasional exceptions to the rule are patients with active myocarditis or with severe coronary disease. Five days before admission he became confused and had scotomas. The question whether he had an actual organic lesion in the brain — metastatic or embolic — or whether this represented toxic psychosis comes up at this point. In any event, he entered the hospital without any localizing neurologic signs or symptoms. The only additional symptom was dull epigastric pain. That is not easy to explain. Symptoms resulting from a congested liver are sometimes described by patients in that fashion. The pain might have been pleuritic, but it was not described as such.

Examination in the hospital revealed signs of consolidation in the right lung base, and moist rales were heard over the left base. The heart was enlarged to the midaxillary line, and there was a systolic murmur at the apex, which was not easy to hear because of the noises in the lungs. No mention was made of edema or enlargement of the liver. If this were congestive failure it may have been limited to the left side of the circulation in the lungs. He was febrile and had an elevated white count. The electrolytes were not remarkable. Finally, a convulsive seizure involving the right side of the body occurred while the patient was straining on the bedpan, and he died.

If this was due to cardiac disease, what kind of cardiac disease was it? There was no evidence of the usual kinds of heart disease — those secondary to hypertension, or rheumatic fever or chronic pulmonary disease. Coronary-artery disease is a possibility, but coronary-artery disease without pain suggesting myocardial infarction seldom gives rise to such cardiac enlargement or to so much congestion in the lungs. Cardiac infarctions rarely occur without pain, and it is a rather unlikely possibility. If it were due to coronary disease, mural thrombi in both right and left ventricles may have caused emboli to the lung and brain. A more likely condition, although certainly a rare one, is idiopathic cardiac hypertrophy. A number of cases of idiopathic cardiac hypertrophy have been reported over the years. Recently Levy and Von Glahn[1] reported ten cases. In their series the condition occurred predominantly in males from 29 to 66 years of age, despite the previous belief that it occurred only in infants or very young children. The average time between the first symptom and death was eight months, which happens to be the duration of the disease in the case under discussion. The symptoms were mainly those of myocardial insufficiency; arrhythmia and tachycardia were quite common. Abdominal pain was noted in three cases, but whether it was due to congestion of the liver is not known. Anginal pain and chest pain were conspicuous by their absence. One of the common features of this condition is emboli to the lungs or brain from the mural thrombi frequently present in both right and left sides of the heart. Sudden death is almost the rule. The electrocardiograms of these patients seem invariably to be normal. Unfortunately, we do not know what the electrocardiographic findings might have been in the present case. In addition, the symptoms are often quite resistant to the usual forms of cardiac therapy — digitalis and so on. Most of the patients show right-sided as well as left-sided failure, and by the time of death they have edema and enlargement of the liver. I know of at least one reported case,[2] however, in which that was not so. I suppose that if a patient dies of emboli relatively early in the course of the disease it would be quite possible to have primarily left-sided heart failure.

I do not believe I can entirely exclude the possibility that this patient had cancer or some other disease in the lung. I think that if I had been given more information I should be in a better position to discuss the possibility of cancer. I shall put as my first choice that the patient had an idiopathic cardiac hypertrophy, mural thrombi in both sides of the heart with emboli to the lungs and finally to the brain and evidence of congestive failure in the lungs and possibly in the liver. Although coronary disease occurs more commonly than idiopathic hypertrophy, this patient did not show the usual picture of coronary disease.

I noted that in 1931 Dr. Cabot himself discussed a case of idiopathic cardiac hypertrophy.[3] Dr. Cabot added a new word to my vocabulary: namely, "marplot," which means, according to the dictionary, "one who by his interference mars or frustrates a design, plan or plot." I am afraid Dr. Castleman may prove to be a marplot in regard to my diagnosis.

Dr. Daniel S. Ellis: I can answer Dr. Myers' questions concerning what we thought about the patient in the Out Patient Department. Aside from

the cardiac enlargement, we were not impressed by any degree of congestive failure. We were wondering what was causing the back pain; we believed that with the story of acute hemoptysis, which was the chief complaint presented at the time, the most likely diagnoses were carcinoma of the lung, adenoma of the bronchus and perhaps tuberculosis. We were wondering whether that tied in with any back pain that he had. We sent him to the Emergency Ward for an x-ray examination of the chest and bronchoscopic study. I then heard that he had been sent home with a diagnosis of congestive failure. Physical examination in the Out Patient Department disclosed a large heart 13 or 14 cm. to the left of the midsternal line, some bronchovesicular breath sounds in the right chest and peculiar lumps all over the skin, which are not mentioned anywhere in the protocol. I notice in the record that I said he had either lipomatosis or neurofibromatosis.

DR. CASTLEMAN: Neurofibromatosis was what it was. We did not want to put in any more "red herrings."

DR. ELLIS: How do you explain the back pain?

DR. MYERS: That does fit in with your diagnosis. However, one does see many elderly people with back pain that is not ultimately explained by cancer or any serious disease of the spine.

DR. ELLIS: I shall hold out for carcinoma of the lung, with metastases.

DR. MYERS: What kind of heart disease did he have then, Dr. Ellis?

DR. ELLIS: What was his blood pressure?

DR. MYERS: It was normal.

DR. ELLIS: That leaves me without an explanation for his cardiac enlargement.

DR. MYERS: You are left without an explanation for the heart disease, and I am left without one for the pain.

DR. ELLIS: Is that all fluid out in the periphery?

DR. WYMAN: That is all fluid. I think it is an unusual amount of fluid. We seldom see this amount in pulmonary congestion. I think the two hili are asymmetrical.

DR. J. H. MEANS: I think Dr. Wyman mentioned the possibility of a cancer in the heart. Would it produce that degree of enlargement if it involved the pericardium and the heart itself?

DR. CASTLEMAN: Yes; it could.

DR. MEANS: Then one could explain the whole picture and the heart disease on a malignant basis.

DR. CASTLEMAN: When you have a carcinoma involving the heart and pericardium, the outline of the heart is usually not so sharp.

DR. WYMAN: The outline might be sharp and very smooth, because of the fluid.

DR. MYERS: That possibility occurred to me. Some autopsy analyses report that about 10 per cent of cases of carcinoma of the lung show involvement of the heart and pericardium. I should think that if the patient had cardiac embarrassment he would have been likely to show evidence of cardiac tamponade, because most such cases have marked pericardial involvement. I agree — it is a possibility.

DR. CASTLEMAN: You do find a good deal of tamponade, because the pericardium becomes quite thick.

A STUDENT: The history does not seem to emphasize the clots that the patient coughed up. He had clots as big as the end of a thumb. I think that was the reason Dr. Ellis and I felt so strongly that it could be a carcinoma. Can Dr. Myers tell us if he sees any of that size in pulmonary infarction? They were over an inch long.

DR. MYERS: I have never particularly noticed the size of such clots. Patients having pulmonary infarction can bring up clots as well as bloody sputum. It never occurred to me that it was a point in the differential diagnosis between cancer and infarction.

DR. CASTLEMAN: It would also be rare to see a clot of that size with a carcinoma.

CLINICAL DIAGNOSIS

Carcinoma of the lung.

DR. MYERS' DIAGNOSES

Idiopathic cardiac hypertrophy.
Mural thrombi, with emboli to lungs and brain.

ANATOMICAL DIAGNOSES

Squamous-cell carcinoma of the lung, with metastases to the regional lymph nodes, pleura, ribs and clavicle.
Hydrothorax.
Cardiac hypertrophy, (?)hypertensive, (?)idiopathic.

PATHOLOGICAL DISCUSSION

DR. CASTLEMAN: The autopsy showed that this man had a grade IV squamous-cell carcinoma of the lung. A mass of carcinomatous lymph nodes in the right hilus completely surrounded the bronchus to the right upper lobe; a smaller branch of this large bronchus was also involved with tumor. The pleura in the upper lobe was completely covered with tumor nodules. Tumor was also present in the parietal pleura; it extended into the ribs and also almost into the middle portion of the clavicle. There was still a large amount of fluid in the right pleural cavity. We also found a little on the left. We were unable to examine the brain because of restrictions, but we are pretty sure that he had metastases there. The heart was enlarged, weighing 570 gm., with a good deal of epicardial fat. The fat weighed almost 100 gm. The left wall measured 1.9 cm. and the right wall was somewhat hypertrophied. The coronary arteries looked quite good; there was a little sclerosis. We are unable to explain the exact type of cardiac hypertrophy. Grossly it appeared

to be hypertensive, because the hypertrophy was left-sided, although it may well have been an idiopathic hypertrophy. We do not know what the blood pressure was before he was seen in the Out Patient Department.

DR. ELLIS: He was a very large man.

DR. CASTLEMAN: He weighed 180 pounds.

DR. MYERS: I think it might be well to mention that evidence found at post-mortem examination is the only definite evidence one may have on which to make a diagnosis of idiopathic cardiac hypertrophy. Patients who have no known cause for cardiac hypertrophy do die in congestive failure. Did this patient show any evidence of congestive failure?

DR. CASTLEMAN: No; the liver showed no evidence at all, and the lungs were not edematous, as one might expect.

DR. MYERS: Was there any evidence of metastases to the pericardium or to the heart?

DR. CASTLEMAN: No; we could not account for the back pain, either.

REFERENCES

1. Levy, R. L., and Von Glahn, W. C. Cardiac hypertrophy of unknown cause: study of clinical and pathologic features in 10 adults. *Am. Heart J.* 28:714-741, 1944.
2. Reisinger, J. A., and Blumenthal, B. Myocardial degeneration with hypertrophy and failure of unknown cause. *Am. Heart J.* 22:811-824, 1941 (Case 1).
3. Case records of the Massachusetts General Hospital (Case 17511). *New Eng. J. Med.* 205:1199-1204, 1931.

CASE 37102

PRESENTATION OF CASE

A thirty-eight-year-old Negro woman entered the Emergency Ward because of abdominal pain.

She had been working as a housemaid and had been in good health until four days before entry, when she was awakened from sleep by severe, sharp lower-abdominal pain that radiated to the rectum and into the right lower quadrant. She continued her household duties during the next day and felt perfectly well. The pain returned that evening, was more intense than before and required a "hypo" for relief. During the next three days she remained in bed, experiencing constant pain and some chilly sensations; she was unable to urinate without long periods of straining. She had "a little temperature" but no chills, dysuria, urgency, frequency or sweats. She continued to pass gas and had a few episodes of mild tenesmus but had no bowel movements following the onset of pain. Coughing, sneezing and moving increased pain; lying still made the pain less severe.

She had an appendectomy in 1938. She denied venereal disease, previous lower-abdominal pain and vaginal discharge. The menstrual periods began at age fourteen and were regular every twenty-eight days until two years before entry, when she began to skip two or three months. The last menstrual period was three months before admission. She had two normal pregnancies, the last eighteen years previously, followed by three spontaneous miscarriages, the last two years prior to entry.

On physical examination no abnormalities were noted in the heart or lungs. The abdomen was soft, with a right-lower-paramedial scar. There was definite tenderness and mild spasm suprapubically and on both sides of the midline, associated with cough and rebound tenderness. Pelvic examination revealed normal external genitalia. The cervix pointed upward; motion of the cervix caused severe pain, as did palpation of the vaults. Behind the cervix was a hard, exquisitely tender mass that completely filled the cul-de-sac and could not be moved. Bimanual examination was unsatisfactory because of pain; the fundus was not made out. By rectal examination the same rounded, tender mass could be felt anterior to the rectum, extending upward behind the cervix.

The temperature was 100.8°F. The blood pressure was 110 systolic, 70 diastolic.

Urinalysis was normal. Examination of the blood showed a hemoglobin of 15.5 gm. and a white-cell count of 13,000, with 82 per cent neutrophils. X-ray films of the chest demonstrated some atelectasis adjacent to the right leaf of the diaphragm in the right lower lobe. There was a suggestion of thickening of the pleura, with a minimal amount of fluid in the right pleural space. A plain film of the abdomen identified normal visceral outlines, bone density and bowel pattern. There were several soft-tissue densities within the pelvis, all of which could have been fluid-filled loops of bowel. Culture of cervical smear was negative for Neisseria; cervical cytologic examination was negative for neoplastic cells. A rapid pregnancy test was negative.

On the third hospital day after penicillin therapy the patient's general condition improved slightly with subsidence of fever, although the mass remained tender and apparently unchanged in size. On the seventh hospital day an operation was performed.

DIFFERENTIAL DIAGNOSIS

DR. JOHN MCL. MORRIS*: This patient, with sudden onset of lower-abdominal pain and the finding of a tender pelvic mass, is a rather typical gynecologic case. It is somewhat like being told that a patient had a mass in the breast and being asked for a diagnosis. It helps to be able to feel the mass, but even the examiner's interpretation may prove wrong in about half the cases.

Before discussing the differential diagnosis, I should like to mention various facts in the history that I consider important. The first is the nature of the onset of the pain, which was sudden, with remission for one day followed by a recurrence. This definitely suggests an acute process — more acute than the ordinary pelvic inflammatory process. By

*Assistant in surgery, Massachusetts General Hospital.

an acute process I mean an ectopic pregnancy or a torsion or infarction of a uterine or ovarian tumor. The acute nature is further suggested by the increase in the pain with cough and motion. The patient had a two-year history of irregular periods. The skipping of periods is not ordinarily associated with organic disease, other than diseases related to pregnancy. Organic pelvic disease may produce amenorrhea, particularly if the ovaries are destroyed, but more commonly there is excessive vaginal bleeding with either intrauterine or extrauterine pelvic disease. I am particularly struck by the statement that on physical examination the cervix pointed upward. By "upward" I presume it is meant that the cervix pointed in an anterior direction. A cervix that points anteriorly is usually associated with retroversion of the uterus, but in this case the cul-de-sac was filled with a hard, tender mass. Ordinarily a hard tender mass would push the uterus anteriorly, and the cervix would be found in the normal position. This suggests the possibility that the mass in the cul-de-sac may have been either the fundus or some tumor associated with the fundus of the uterus. The moderate elevation in temperature and white-cell count is consistent with any acute pelvic process.

The chest x-ray films are especially interesting. The findings of fluid and thickened pleura with the presence of a pelvic mass suggest the possibility of some disease such as tuberculosis. It is also consistent with an early Meigs syndrome,[1] a fibroma of the ovary with ascites and hydrothorax. There was no mention of any ascites. The chest picture may have been associated with carcinoma in the pelvis and metastases in the chest, or it may have been an incidental "red herring" — atelectasis or an infarct that occurred with an acute pelvic process.

May I see the x-ray films?

Dr. Joseph Hanelin: We have two sets of chest films, made seven days apart, that show similar findings. The right costophrenic sulcus is partially obliterated, suggesting either thickened pleura or a small amount of fluid, or perhaps both. Adjacent to the lateral aspect of the right diaphragmatic leaf there is a slight linear density. It is rather hard to determine the age of this process in the chest. It may have occurred at some time previous to the present episode and may represent residual change to an old inflammatory process, or it may be of recent origin — possibly due to an infarct. There is nothing to indicate the presence of ascites. There is a vague density within the true pelvis that may represent the mass that was palpated. This is quite homogeneous and shows no calcification.

Dr. Morris: Would it be possible, on the basis of these films, to make any statement with reference to Meigs' syndrome or to early carcinoma?

Dr. Hanelin: I do not see anything here that suggests metastases to the lungs. This is not the ordinary appearance of Meigs' syndrome, which is characterized by ascites and pleural effusion.

Dr. Morris: In discussing the differential diagnosis in this type of case, I should like first to eliminate the more unlikely conditions. The first is extragenital disease — lesions of the bowel such as appendiceal abscess, diverticulitis or carcinoma with abscess formation, pelvic kidney, some silent carcinoma or some unusual internal hernia. There is no evidence for any of these. There is no statement anywhere in the protocol about bowel difficulty other than the pressure symptoms, which may be produced by any pelvic mass.

Secondly, conditions associated with pregnancy — particularly ectopic pregnancy — seem unlikely. Ectopic pregnancy characteristically has a more colicky type of pain. In the series reported by Bell and Ingersoll[2] vaginal bleeding occurred in 84 per cent of cases. The negative rapid pregnancy test is not much help. Pregnancy tests are negative in about 25 per cent of cases of ectopic pregnancy. The fact that the patient had no evidence of hemorrhage or shock and had a normal hemoglobin is against any intra-abdominal bleeding. Moreover the mass was described as firm and hard, whereas ectopic pregnancies are more commonly boggy and tend to be somewhat smaller than the mass described here.

Thirdly, I should like to rule out endometriosis. Endometriosis is somewhat uncommon in the Negro race. This patient had two children and three miscarriages, which is somewhat against an endometrioma with associated infection or hemorrhage. Also, the size of the lesion is larger than the usual endometrioma.

Another possibility, pelvic inflammatory disease, is a condition to which the Negro race is especially prone. There was no evidence of an acute pelvic inflammatory disease — specific or otherwise. Acute pelvic inflammatory disease does not ordinarily migrate above the cervix unless with menstruation — and this patient had not menstruated for three months. It is possible that she had some form of chronic pelvic inflammatory disease and that the acute onset represented a flareup of an infection in an old hydrosalpinx. Such cases are more likely to be accompanied by excessive bleeding than by oligomenorrhea. With the chest findings, the possibility of tuberculous pelvic inflammatory disease is one to be considered. This is a fairly rare condition. Most authors mention about 5 per cent of cases of salpingitis as being tuberculous. In a more recent survey, Hundley and his coworkers[3] reported that only 1.7 per cent of a large series of cases were of tuberculous origin. The question of associated pulmonary disease is frequently emphasized, but Hundley found that only 10 per cent showed chest findings. On the whole, this occurs a little earlier in life, and it does not commonly

produce so large a mass as this one. It would be rather uncommon to have quite such an acute onset.

I come next to some form of pelvic neoplasm. It is quite possible that an ovarian, a paraovarian or even a fallopian-tube tumor might undergo torsion and infarction and produce this set of symptoms. Carcinoma of the ovary is possibly the best bet. However, the patient was rather young for carcinoma of the ovary. The negative cytologic examination means little in carcinoma of the ovary, but the description of the mass is not entirely consistent with carcinoma. If I had to name an ovarian tumor, I should be more inclined to name an ovarian cyst — only because about 50 per cent of ovarian tumors prove to be nonneoplastic cysts. In the uterine group I would rule out cervical or endometrial carcinoma because of the absence of bleeding and the negative vaginal smear.

Fibroids occur in about one of every five women, and their incidence is even higher in the Negro. The description of the uterus, with a cervix pointing anteriorly and a mass filling the cul-de-sac, is consistent with a fibroid, and the acute symptoms suggest that it had undergone some degenerative change: that is, torsion of a pedunculated fibroid or a hemorrhage or infarction of one. I realize that this is not a very exotic diagnosis, but I shall pick that as a first choice and then follow it with torsion or hemorrhage into an ovarian cyst or tumor. It is impossible to rule out completely an old hydrosalpinx, of either a tuberculous or a nonspecific sort, that has flared up.

Dr. John T. Quinby: Dr. Morris, does either fibroid or ovarian cyst give as many associated symptoms in the bladder and rectum as this patient apparently had?

Dr. Morris: I think that in any pelvic tumor the pressure alone may produce such symptoms. It is possible that if the patient had a retroverted uterus it may have become actually caught in the cul-de-sac and that pressure on the rectum and bladder caused tenesmus.

Clinical Diagnosis

Fibroid of the uterus.

Dr. Morris's Diagnosis

Degenerated fibroid of the uterus.

Anatomical Diagnosis

Degenerated leiomyoma of the uterus.

Pathological Discussion

Dr. Benjamin Castleman: When the patient was first admitted the physicians thought she had a pelvic abscess, because of the elevated temperature, the slight leukocytosis and the extreme tenderness. That is why they did not operate for some time; later they decided that it might be a fibroid.

At operation a large fibroid about 12 cm. in diameter was found, attached to the posterior wall of the uterus; it was removed with the uterus. There were areas of degeneration in the tumor, but it had not twisted at all.

Dr. Morris: I do not think there was any way of knowing that there was no pelvic inflammation. I believe the operation was more exploratory than anything else.

References

1. Meigs, J. V. Further contribution to syndrome of fibroma of ovary with fluid in abdomen and chest: Meigs' syndrome. *Am. J. Obst. & Gynec.* **46**:19-37, 1943.
2. Bell, J. W., and Ingersoll, F. M. Evaluation of symptoms and signs in ectopic pregnancy, based on analysis of 130 cases. *Am. J. Obst. & Gynec.* **60**:174-179, 1950.
3. Hundley, J. M., Jr., Diehl, W. K., and Baggott, J. W. Bacteriological studies in salpingitis with special reference to gonococcal viability. *Am. J. Obst. & Gynec.* **60**:977-984, 1950.

The New England
Journal of Medicine

Formerly
The Boston Medical and Surgical Journal
Established 1828

Official Organ of
THE MASSACHUSETTS MEDICAL SOCIETY
and
THE NEW HAMPSHIRE MEDICAL SOCIETY
OWNED BY THE MASSACHUSETTS MEDICAL SOCIETY AND PUBLISHED WEEKLY UNDER THE JURISDICTION OF THE COMMITTEE ON PUBLICATIONS

Richard M. Smith, M.D., *Chairman*
James P. O'Hare, M.D. Conrad Wesselhoeft, M.D.
Oliver Cope, M.D. John Fallon, M.D.

Joseph Garland, M.D., Editor

Associate Editors
Thomas H. Lanman, M.D. Donald Munro, M.D.
Theodore H. Ingalls, M.D.

Clara D. Davies, Executive Editor
Robert O'Leary, Assistant Editor*

Editorial Board
C. Guy Lane, M.D. Maxwell Finland, M.D.
Henry R. Viets, M.D. C. Stuart Welch, M.D.
Robert M. Green, M.D. Vernon P. Williams, M.D.
Dwight O'Hara, M.D. Benjamin Castleman, M.D.
Fletcher H. Colby, M.D. Hugh R. Leavell, M.D.
Robert L. Goodale, M.D. J. Englebert Dunphy, M.D.
Chester M. Jones, M.D. Robert W. Buck, M.D.
Harvey R. Morrison, M.D. Herrman L. Blumgart, M.D.
Deering G. Smith, M.D.†

*On leave of absence with the Armed Forces.
†Representing the New Hampshire Medical Society.

SUBSCRIPTION TERMS: $8.00 per year in advance, postage paid, for the United States (medical students, $4.00 per year); Canada, $9.00 per year (Boston funds); foreign, $10.50 per year.

MICROFILM volumes available to regular subscribers through University Microfilms, 313 N. First Street, Ann Arbor, Michigan.

MATERIAL, other than original articles, should be received not later than noon on Thursday, three weeks before date of publication.

THE JOURNAL does not hold itself responsible for statements made by any contributor.

COMMUNICATIONS should be addressed to the *New England Journal of Medicine*, 8 Fenway, Boston 15, Massachusetts. Telephone KE 6-3094.

OVERPLAYING THE HAND

IT IS a matter for concern, in the course of the fundamentally honest fight that the physicians of America are making to maintain a wholesome independence in the practice of medicine, to find ammunition used in the cause of freedom that would hardly meet the requirements established at Geneva. Such is the "report" on the findings of the work groups of the Midcentury White House Conference on Children and Youth that was made to the firm of Whitaker and Baxter by their own agent and distributed by them as an activity of the National Education Campaign of the American Medical Association.[1]

Prepared, apparently, for the sole purpose of reflecting still further discredit on Mr. Ewing, the document is likely to redound chiefly to the discredit of its authors, for it is nothing more or less than a listing of quotations, findings and conclusions so far removed from their context as to result in distortion of their original meaning.

Ignored and unmentioned is the whole background of previous White House Conferences, which have been held approximately once a decade regardless of the political affiliations of the President then in office. The first conference, called by Theodore Roosevelt, was instrumental in the creation of the Children's Bureau; Wilson, Hoover and Franklin D. Roosevelt were hosts to others. In the present instance the fact is not stated that the chairman of the Conference, Mr. Leonard W. Mayo, is nationally known for his work in the social sciences — not for his politics.

It is, of course, too early to do more than estimate the significance of the White House Conference. Evaluation by innuendo and deletion, however, is no evaluation at all. Perhaps the most curious inconsistency of the whole mistaken effort is the difference between the judgment of the agency in charge of the education campaign and that of the *Journal of the American Medical Association*.

The Midcentury Conference was endorsed editorially by the *Journal of the American Medical Association*[2] as "little concerned with medical care" and "not out of line with medical society policy." "The actions taken . . . will take root in the states and their communities to mold a new understanding of the influences that affect the healthy personality development of our children and youth."

When a campaign of education is being conducted in the face of opposition, however determined, prestige will accrue to the open-minded and generous "educator" rather than to him who will not or cannot recognize any virtue or sincerity in his opponents.

REFERENCES

1. Excerpts from findings of the work groups and conference platform. Midcentury White House Conference on Children and Youth. Washington, D. C., December 3-7, 1950.
2. Editorial. Midcentury White House Conference on Children and Youth. *J. A. M. A.* 144:1467, 1950.

MIDDLESEX WEST

THE Council of the Massachusetts Medical Society, at its meeting on October 4, 1950, approved the recommendation of the Committee on Redistricting that a new district medical society be formed — the first since the Norfolk South District was admitted in 1884. This action was taken at the re-

quest of a majority of the physicians practicing in the towns involved; it consisted of the skillful amputation of certain municipalities from the Worcester District Medical Society and from the westerly reaches of Middlesex South, and their reactivation, a little like the phoenix rising from its ashes, into a new and robust society.

The action may recall to some suspicious minds the gerrymandering that took place in the neighboring county of Essex in 1812. The redistricting that resulted from the machinations of Governor Gerry's party was for a foul political purpose, however, whereas the motives behind the formation of the Middlesex West District Medical Society are in the interests of geographical solidarity and the better practice of medicine, and are pure as the driven snow.

For the proper consummation of this noteworthy event the members of the new district met in Framingham on February 28, 1951, and there, according to an ancient ritual of the Massachusetts Medical Society, formally petitioned for their corporate acceptance into the Society. The injunctions then placed upon them came from the lips of the Secretary, Dr. H. Quimby Gallupe.

Unlike the midwestern university in whose college paper appeared the announcement of a new tradition "to become effective next Wednesday," the Middlesex West District Medical Society is already replete with tradition. It has behind it the traditions of the oldest, the most historic and certainly one of the most effective state medical societies in the country; it has inherited the best traditions of the three district societies from which it sprang. More importantly, however, it is imbued, through each physician in its membership, with the finest traditions of New England medicine.

It needs no further accolade.

PSYCHIATRY COMES OF AGE

STUDIES of the kind presented by Bockoven, Greenblatt and Solomon elsewhere in this issue of the *Journal* are much needed. Every successful effort to quantitate functional disease objectively furthers the fruition of psychiatry as a science. Perhaps too often the psychiatrist has gloried in his art rather than his science, and it is likely that fifty years hence he will give much less time to details of symptomatology than he does today. An improved understanding of *causation* of mental disease, whether psychic, somatic or psychosomatic, is the key to rational treatment and prevention.

In what seems to some an excessive preoccupation with symptoms rather than measurable signs, the psychiatrist often cuts himself off from a scientific compass to such a degree that there is no way of saying whether he is going in the right or wrong direction. Like the pranks of the subconscious mind, the subject of dreams cannot be studied scientifically unless something is measured. Otherwise, the dream content of individuals may be interpreted as economic, premonitory, Freudian or due to indigestion — depending upon whether the interpreter is a bank clerk, a novelist, a psychiatrist or a gastroenterologist. The difficulty is that there is no psychosomatic pathologist to take over the rostrum occasionally and prove which of the four practices the best art. The study of dreams is certainly no science. Yet it could be made one if the investigator would heed the advice given in a recent editorial in the *Journal of the American Medical Association**:

> [In medical research] it is essential that the investigator understand the quantitative aspects of the phenomenon he is studying. If he is developing a new diagnostic test, he must know how to determine its validity by comparing it with pre-existing tests. If there are no other relevant tests in existence, he must know how to determine the reliability of his new procedure by the method of test-retest correlation. If he is developing a new therapy, he must know how to set up fourfold tables comparing treated with untreated subjects and must know how to compute the probability that apparently favorable results were accidental.

Psychiatry, being nearest the art and farthest from the science of medicine, has a great responsibility to quantitate scrupulously, to study objectively and to use rigidly selected control groups whenever possible. The authors of this article state that when their patients "remained in the community for long periods of time it was considered presumptive, though not conclusive, evidence that the improvement had been maintained." Such an assump-

*Editorial. Are statistics necessary? *J. A. M. A.* 143:1260, 1950.

tion is reasonable but, as they themselves recognize, it is no substitute for follow-up studies. A study of the effectiveness of therapy can be misleading when it is based only on the criterion of whether or not the patient gets out of the hospital. His health after discharge remains a crucial consideration; a comparison of the ultimate health of patients submitted to electric shock and insulin therapy should be made with that of a comparable series of controls not so treated. The psychiatrist could measure the effects of therapy by means of a study of "five-year cures," much as does the student of cancer or of tuberculosis. It is hardly scientific to compare morbidity and mortality experience of the Boston Psychopathic Hospital with that of a state hospital that admits patients on an entirely different basis. To disclose "the striking fact that the Boston Psychopathic Hospital discharges twice as many patients admitted with functional psychoses as did the New York State Hospitals in the era antedating somatic therapy" may be merely to disclose that other state hospitals accept a large percentage of their patients for permanent custodial care.

NOT SO MERRY

THE Durham, England, County Council, predominantly Labor in sympathy, voted last November to require of all its employees membership in a trade union "or appropriate body." This order applied to forty-eight of the fifty-three physicians of the county, as practically all physicians in England are now government employees. Since few physicians are eligible for membership in old-line trade unions, the British Medical Association was considered sufficiently similar to a trade union to cover the requirements for the county's medical personnel.

On this side of the Atlantic, even though so many of the freedoms for which the embattled farmers fought are now in jeopardy, such a demand coming from any democratic governmental body seems shocking.

The decision of the Durham Council in favor of the closed shop for physicians was reaffirmed later in the month, with the British Medical Association continuing to uphold the right of voluntary membership in its ranks and offering, in conjunction with the British Medical Guild, organizational and financial assistance "to give their colleagues in Durham firm and resolute support."

One may recall those lines from Gray's *Elegy* commemorating

> Some village Hampden, that with dauntless breast
> The petty tyrant of his fields withstood,

and hope that British medicine may continue to withstand its own petty tyrannies.

Some of the freedoms that began at Runnymede appear to have clashed into reverse gear in Merry England, and it is now the representatives of the people who have taken over the tyrant's role.

Glycerine still continues to be used in England in the treatment of certain cases of deafness. Thos. H. Wakley, Esq., Surgeon to the Royal Free Hospital, reports a number of successful cases in The Lancet. It is found particularly useful in deafness following eruptive and other fevers.

Boston M. & S. J., *March 12, 1851*

MASSACHUSETTS MEDICAL SOCIETY

DEATHS

COONSE — G. Kenneth Coonse, M.D., of Harvard, died on February 15. He was in his fifty-fifth year.

Dr. Coonse received his degree from Harvard Medical Society in 1924. He was a fellow of the American College of Surgeons, the American Orthopedic Association, the American Academy of Orthopedic Surgeons and the American Medical Association.

His widow and two daughters survive.

DAVIS — Winnifred Davis, M.D., of Cambridge, died on February 17. She was in her eighty-sixth year.

Dr. Davis received her degree from Tufts College Medical School in 1898.

No immediate relatives survive.

BOSTON MEDICAL LIBRARY

MEDICAL EDUCATION, 1854–57

The Library has received from Dr. Edith C. Varney a collection of sixteen medical-course admission cards of Harvard University and the Massachusetts General Hospital for the years 1854–55 and 1856–57 of Albert H. Varney; three certificates for extracurricular instruction in the practice of

medicine of Dr. George D. Staples, of North Berwick, Maine, for 1854, prior to Varney's matriculation at Harvard; from Dr. Moses Parker, of Melrose, Massachusetts, for the period of November 1, 1854, to August 1, 1855 and from Moses Sweat, of North Parsonfields, Maine, for March 1 to November 1, 1856.

It is interesting to note that young Varney was ambitious and progressive in his desire to attain the best possible education of his time. Before entering medical school in November, 1854, he served six and a half months as an apprentice in medicine to a well known physician. During his Harvard years, he likewise served two terms as an apprentice to two physicians.

Dr. J. B. S. Jackson was dean when Varney began his medical studies; his instructors included Oliver Wendell Holmes in anatomy and physiology, Jacob Bigelow in materia medica, Dr. Jackson in pathological anatomy, D. Humphreys Storer in midwifery and medical jurisprudence, Henry J. Bigelow in surgery and clinical surgery and John Ware and Morrill Wyman in the theory and practice of physic all these courses being listed in Varney's first-year curriculum (1854–55). During the second year (1855–56), he repeated with Holmes, Ware and Wyman, and took courses with George C. Shattuck in clinical medicine and with Josiah P. Cooke, Jr., in chemistry. In the third year (1856–57), he repeated the courses of Jackson and Storer. During all three years he had cards of admission to the Massachusetts General Hospital.

Dr. Varney was born in North Berwick, Maine, on March 27, 1836, and died January 16, 1918, at eighty-two. He began practice in Chicago, but in 1860 returned to New England and settled in South New Market, now the town of Newfields, New Hampshire. For many years he had an office in Exeter, and was much interested in the founding of the New Cottage Hospital, of which he was an attending physician for many years. He was assistant surgeon of the New Hampshire National Guard, second regiment, for three years. He lived close to his community and served it well for nearly sixty years.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

PROPHYLACTIC TETANUS ANTITOXIN AVAILABLE FROM THE DEPARTMENT

Beginning on March 1, 1951, the Division of Biologic Laboratories will release for distribution a 1500-unit package of prophylactic tetanus antitoxin. This product will be available at the biologic stations throughout the State, which may place orders for it in the same manner as for other biologics. *Therapeutic* tetanus antitoxin is *not* being distributed.

The Department believes that tetanus antitoxin has enough merit as a civilian defense measure to warrant beginning distribution of it before large reserves have been accumulated. The widespread and increasing use of tetanus toxoid, administered either alone or in combination with other prophylactic agents, should reduce the need for prophylactic tetanus antitoxin in normal civilian life.

It is well to point out the advantages of active immunization against smallpox, diphtheria, tetanus and pertussis in times of disruption caused by war. Some immunity will be retained by the individual for several years after active immunization, whereas prophylactic or therapeutic use of antitoxins requires the services of physicians and supplies at a precise place and time if any good is to be accomplished. Even without a booster dose at the time of injury, some protection remains from prior tetanus toxoid inoculations. Therefore combined antigens that include tetanus toxoid are very important in civil defense.

One urgent reason for tetanus immunization is that antitoxin may be scarce when most needed, either because of supply shortages due to lack of laboratory personnel or materials or because of disruption of transportation in an emergency.

COMMUNICABLE DISEASES IN MASSACHUSETTS FOR JANUARY, 1951

Résumé

Disease	January 1951	January 1950	Seven-Year Median
Chancroid	3	2	2
Chicken pox	2641	2101	2322
Diphtheria	15	21	21
Dog bite	790	631	569
Dysentery, bacillary	3	16	14
German measles	101	77	106
Gonorrhea	238	196	360
Granuloma inguinale	1	0	0
Lymphogranuloma venereum	1	1	1
Malaria	0	1	8
Measles	840	260	1167
Meningitis, meningococcal	7	4	8
Meningitis, Pfeiffer-bacillus	9	5	4
Meningitis, pneumococcal	1	8	5
Meningitis, staphylococcal	0	0	0
Meningitis, streptococcal	0	0	0
Meningitis, undetermined	7	6	5
Mumps	1668	1179	1179
Poliomyelitis	8	1	1
Salmonellosis	6	2	3
Scarlet fever	716	416	804
Syphilis	147	149	311
Tuberculosis, pulmonary	233	226	226
Tuberculosis, other forms	10	15	12
Typhoid fever	0	1	1
Undulant fever	1	3	3
Whooping cough	408	496	480

Comment

Diseases notably above the 7-year median for this month are chicken pox, Pfeiffer-bacillus meningitis, mumps, poliomyelitis and salmonellosis.

Below the 7-year median for the month are diphtheria, bacillary dysentery, measles, scarlet fever, undulant fever and whooping cough.

The number of cases of diphtheria is the lowest for January in three years; this is the 17th consecutive month in which the total has been lower than for the corresponding month of the previous year.

Mumps is at the highest level since 1945.

The single case of undulant fever is the lowest number reported for January in five years.

Whereas the 8 cases of poliomyelitis are the highest number reported for January since 1931, this is much less than the 26 cases reported in December.

GEOGRAPHICAL DISTRIBUTION OF CERTAIN DISEASES

Diphtheria was reported from: Boston, 3; Brookline, 1; Cambridge, 5; Clinton, 1; Lowell, 2; Milton, 1; New Bedford, 1; Wakefield, 1; total, 15.

Dysentery, amebic, was reported from: Foxborough, 1.

Dysentery, bacillary, was reported from: Boston, 1; Brookline, 2; total, 3.

Encephalitis, infectious, was reported from: Barre, 1; Somerville, 1; Westfield, 1; Weston, 1; Worcester, 1; total, 5.

Hepatitis, infectious, was reported from: Georgetown, 1; Leicester, 1; Montague, 2; total, 4.

Meningitis, meningococcal, was reported from: Boston, 1; Pittsfield, 1; Somerville, 4; Worcester, 1; total, 7.

Meningitis, Pfeiffer-bacillus, was reported from: Boston, 1; Danvers, 1; Fitchburg, 1; Holyoke, 1; Leominster, 1; Newton, 1; Pittsfield, 1; Plymouth, 1; Quincy, 1; total, 9.

Meningitis, pneumococcal, was reported from: East Brookfield, 1.

Meningitis, mumps, was reported from: Somerville, 1.

Meningitis, undetermined, was reported from: Franklin, 1; Gardner, 1; Leominster, 1; Mansfield, 1; North Reading, 1; Quincy, 1; Rockland, 1; total, 7.

Poliomyelitis was reported from: Dracut, 1; Fall River, 1; Lowell, 1; New Bedford, 1; Quincy, 1; Southboro, 1; Williamstown, 1; Worcester, 1; total, 8.

Salmonellosis was reported from Boston, 1; Brookline, 3; Newton, 1; Rockland, 1; total, 6.

Septic sore throat was reported from Adams, 3; Boston, 3; Medford, 1; New Bedford, 1; Newton, 2; total, 10.

Tetanus was reported from: Brockton, 1.

Undulant fever was reported from: Gill, 1.

MISCELLANY

NAVAL RESERVE PROGRAM

Attention is directed to the notice, published on page 384 of this issue, of the two March meetings of the Naval Reserve Volunteer Medical Unit No. 1-1. These programs, which have been held regularly since early summer, have been directed largely toward atomic medicine and to a lesser extent toward civilian defense.

The meetings, to which all physicians and medical students are invited, are held on the second and fourth Wednesdays of each month in the amphitheater of the Children's Hospital, 300 Longwood Avenue, Boston, at 7:30 p.m.

CORRESPONDENCE

NEW MEDICAL SCHOOL FAVORED

To the Editor: Even if nowadays it is customary to look at a problem from one point of view, it might be worthwhile to look at the question of a medical and dental school incorporated in the University of Massachusetts from a different angle.

The point taken in the editorial that there is no "acute and growing shortage of physicians . . . within the Commonwealth" is irrefutable. I might even add that the medical schools of this state are training a sufficient number of physicians to take care of the needs of the Commonwealth. Still, there are other valid reasons why such a school should be established.

All the medical schools in Massachusetts are national rather than local institutions, intent on retaining their countrywide reputation and a student body recruited from all over the United States. In their admission policies most of them consider factors other than character, aptitude and scholastic standing, making it impossible for many of our well qualified young people to enter medical school.

Most experts considering the problem think it is desirable to train more physicians in this country for a demand already growing for new health services. It ill behooves the medical profession to oppose the training of more good physicians. Also the expense of a state-sponsored medical school would be a good deal less per taxpayer than the amount we are invited to contribute to the American Medical Education Foundation to preserve the existing schools as they are, with all their great virtues — and some serious shortcomings.

Mr. Dever is an astute politician and is sponsoring a good cause, even if one of his arguments is weak. The fact of the matter is that the purpose of the University of Massachusetts is to give a higher education to citizens of the State. The facilities for a medical education at a cost they can afford are not available to many of them. The training of more physicians is desirable; conditions in Boston are favorable for a new school; therefore let all physicians of the Commonwealth, individually and by their organizations, line up behind the Governor and help him establish the School of Medicine of the University of Massachusetts — or prove to the public that there is a selfish medical trust primarily interested in assuring its own affluence by keeping down competition.

JOSEPH MULLER, M.D.

Worcester, Massachusetts

Note: Dr. Muller's approval of a state-sponsored medical school, apparently as an economical alternative to preserving the existing schools, does not, perhaps, offer the most satisfactory solution to a much-discussed problem. — *The Editor.*

BEFORE HELMHOLTZ

To the Editor: Since the author of the editorial "A Century of Ophthalmoscopy" in the January 11, 1951, issue of the *Journal* took the opportunity to refer to Helmholtz's predecessors, may I call his attention to an important one whom he failed to mention: Johannes Purkinje (paper of 1823).

See: Thau, W. "Purkinje: A pioneer in ophthalmoscopy," *Arch. Ophth.* 27:299, 1942, and the editorial in the *Journal of the American Medical Association*, "Purkinje and the Origins of Ophthalmoscopy," May 23, 1942, issue.

MARY ELMORE SAUER

Assistant Professor of Anatomy

The University of Texas, Medical Branch

Galveston

BOOK REVIEWS

Coronary Circulation in Health and Disease. By Donald E. Gregg, M.S., Ph.D., M.D. 8°, cloth, 227 pp., with 73 illustrations. Philadelphia: Lea and Febiger, 1950. $4.50.

The author states that "the purpose of this monograph is to consider some of the many advances that have resulted from various investigations, and to attempt to crystallize our thinking regarding this, the most important vascular bed in the body." In other words, it is a critical review of research in the field of coronary circulation by one who, for many years, has been involved in the study of this particular area of the circulation. Therefore, it is essentially a reference text, as is clear from the fact that the bibliographic references following the eight chapters total 637.

After a general statement of the problem, there is a discussion of the general anatomic considerations and then two chapters on experimental approaches to the coronary circulation. These describe experimental preparations, the methods of measuring cardiac pressures and the recording of coronary flow. The distribution of coronary blood flow is considered in the succeeding chapter and then the determinants of coronary blood flow, metabolism and work, and the coronary circulation in heart disease and heart failure. The effects of drugs are discussed in detail.

In view of the rapidly expanding literature on the subject of the coronary circulation, this volume serves as a valuable summary of knowledge to date, and it should be in the library of every investigator in the field, as well as in that of everyone who wishes a careful assessment of the conflicting evidence in some of the experimental work.

The Foreword was written by Dr. Carl J. Wiggers, and the reviewer believes that his final statement accurately describes the position of this book: "It may confidently be predicted that cardiovascular investigators, cardiologists, and progressive practitioners of general medicine will all feel that Dr. Gregg has rendered a real service in launching this monograph, *The Coronary Circulation in Health and Disease.*"

Religion and the Cure of Souls in Jung's Psychology. By Hans Schaer. Translated by R. F. C. Hull. 8°, cloth, 221 pp. New York: Pantheon Books, Incorporated, 1950. $3.50.

The author of this book has rendered a distinct service by presenting, in clear and orderly fashion, first, some of the basic elements of Jungian psychology, and then, in greater detail, Jung's psychology of religion and his views on the cure of souls. Dr. Schaer has written neither a critique nor a defense of Jung's psychiatric insights into religion (though the author seems to be in definite sympathy with Jungian theory). Although Dr. Schaer is a Protestant theologian and pastor, the numerous references to and quotations from Jung reveal his wide familiarity with Jung's thinking and writings. These references have wisely been relegated to the bottom of the page, where they do not hinder the flow of the text. Unfortunately, however, a bibliography is not included.

Although this volume will probably be of greatest interest to the theologian and the psychoanalytically oriented clergyman, the physician and especially the psychiatrist will doubtless find much of value in it. The latter readers, whatever they may think of their validity, should still appreciate Dr. Schaer's clear summary of such Jungian concepts as the personal unconscious, collective unconscious, archetypes, the karma-factor, autonomous complexes, the shadow, the persona, the anima or animus, the psychologic types (introversion and extroversion), the law of enantiodromia and Jung's four fundamental functions (thinking, feeling, intuition and sensation). This is a helpful introduction to material with which most depth psychologists should be familiar, but which is too often overlooked.

To the serious student of religion and the clinically trained pastor this book will be of real value. It distills the wealth of Jung's researches into the psychology of religion, including some recent material not yet available in English translations. Dr. Schaer presents Jung's concepts of religious conversion, the function and origin of myths, the religious symbol, the significance of spirit and the various psychologic functions of religion. The process Jung calls individuation and his profound and provocative insights into the "Catholic" and "Protestant" spirit (Jung uses these terms in a special way that conveys much more than the usual ecclesiastical labels) are presented here with great clarity and directness. Whether it is for professional interest or personal understanding of certain significant philosophic issues, the reading of this book is recommended.

BOOKS RECEIVED

The receipt of the following books is acknowledged, and this listing must be regarded as a sufficient return for the courtesy of the sender. Books that appear to be of particular interest will be reviewed as space permits. Additional information in regard to all listed books will be gladly furnished on request.

Sex Without Fear. By S. A. Lewin, M.D., and John Gilmore, Ph.D. With a foreword by Sarah K. Greenberg, M.D. 8°, cloth, 121 pp., with 45 illustrations. New York: Lear Publishers, Medical Division, 1950. $3.00.

This manual has been written for the married and those about to be married. The authors are frank in their discussion of various phases of sexual matters. Some of the material is legally not permissible in Massachusetts. The title of the book does not indicate its practical content.

Cell Growth and Cell Function: A cytochemical study. By Torbjoern O. Caspersson, M.D., professor of cell research and genetics at the Medical Nobel Institute of the Karolinska Institute, Stockholm, Sweden. 8°, cloth, 185 pp., with 94 illustrations. New York: W. W. Norton and Company, Incorporated, 1950. $5.00.

This monograph presents a summary of the research on the basic life process in living cells that was carried out during the past fifteen years at the Institute for Cell Research at the Karolinska Institute, Stockholm, Sweden. The material was first presented in a series of lectures delivered in 1948 under the auspices of the Salmon Committee. The text may be roughly divided into two parts: microspectrophotometry of biologic specimens, microspectography of nucleotides and proteins and protein formation and metabolism. The text is concluded with a bibliography. The publishing is good. An index would have made the book more valuable for reference purposes.

Penicillin and Streptomycin in the Treatment of Infections. By Chester S. Keefer, M.S., M.D., Sc.D. (Hon.), Wade Professor of Medicine, Boston University School of Medicine, director of Evans Memorial and physician-in-chief, Massachusetts Memorial Hospitals, Boston, chairman, Committee on Chemotherapeutic and Other Agents, National Research Council, and consultant to the Committee on Medical Research, Office of Scientific Research and Development, Washington, D. C., and Donald G. Anderson, M.D., instructor in medicine, Boston University School of Medicine, research fellow in medicine, Evans Memorial, and assistant visiting physician, Massachusetts Memorial Hospitals, Boston. 8°, cloth, 109 pp. New York: Oxford University Press, 1950. $2.50. (Reprinted from *Oxford Loose-Leaf Medicine* with the same page numbers as in that work.)

The two up-to-date articles on penicillin by Keefer and Anderson, and on streptomycin, by Keefer, originally printed in the *Oxford Loose-Leaf Medicine*, are now made available in book form, separate from the larger work, to all physicians. The text presents a summary of the current knowledge of these two important antibiotics. Comprehensive bibliographies are appended to each article. The publishing is excellent.

Non-Valvular Heart Disease. By Henry A. Christian, A.M., M.D., LL.D., Sc.D. (Hon.), M.A.C.P., Hon. F.R.C.P. (Can.), D.S.M. (A.M.A.). 8°, cloth, 72 pp. New York: Oxford University Press, 1950. $2.00. (Reprinted from *Oxford Loose-Leaf Medicine* with the same page numbers as in that work.)

In this small monograph Dr. Christian discusses myocarditis in all its forms and chronic nonvalvular conditions, including hypertensive heart disease. The text is concluded with a bibliography and there is a good index. The publishing is excellent. This summary of present-day knowledge of two classes of heart conditions should prove valuable to all practicing physicians.

Handbook of Physical Medicine and Rehabilitation: Selections authorized for publication by the Council on Physical Medicine and Rehabilitation, American Medical Association. 8°, cloth, 573 pp., with 56 illustrations and 25 tables. Philadelphia: Blakiston Company, 1950. $4.25.

This book, under a new title, adding rehabilitation, is the fifth edition of the *Handbook* issued by the American Medical Association. The term physical medicine is defined by the Council as the diagnosis and treatment of disease by various nonmedical means. The text is made up of thirty different articles by specialists in their particular fields. A list of motion-picture films concludes the volume. There is a good index. The book should be in all medical libraries and available to all persons interested in the subject.

A Textbook of Psychiatry for Students and Practitioners. By Sir David Henderson, M.D. (Edin.), F.R.F.P.S. (Glas.), F.R.C.P. (Ed. and Lond.), physician-superintendent of the Royal Edinburgh Hospital for Mental Disorders and professor of psychiatry, University of Edinburgh, and the late R. D. Gillespie. Seventh edition. 8°, cloth, 740 pp. New York: Oxford University Press, 1950. $7.75.

The first edition of this standard work was published in 1927, and the previous edition in 1944. The text has been revised, and the chapter on psychopathic states has been rewritten to a considerable extent by Dr. Henderson. There is a chapter on occupational therapy, and one on the relations of psychiatry and the law, based on the laws of Great Britain, the United States and other countries. There is a good index, and the book is well published. It should be in all collections on the subject.

Psychomatic Medicine: Its principles and applications. By Franz Alexander, M.D., director, Chicago Institute for Psychoanalysis, and clinical professor of psychiatry, University of Illinois. With a chapter on the functions of the sexual apparatus and their disturbances, by Therese Benedek,

M.D., member of staff, Chicago Institute for Psychoanalysis. 8°, cloth, 300 pp. New York: W. W. Norton & Company, Incorporated, 1950. $4.00.

This new book on psychomatic medicine is divided into two principal parts. The first is on general principles in eight chapters. The second discusses emotional factors in different diseases, including gastrointestinal, cardiovascular and respiratory disturbances (asthma and skin diseases), metabolic and endocrine disturbances, and disturbances of the joints and skeletal muscles, including rheumatoid arthritis and the accident-prone person. There is a special chapter on the psychomatic approach in therapy. The pertinent literature is reviewed and illustrative case histories interpolated throughout the text. There is a good bibliography and indexes of names and subjects. The publishing is good, and the volume should be in all collections on the subject.

NOTICES

ANNOUNCEMENT

Dr. Donald M. Stewart announces the removal of his office for the practice of obstetrics and gynecology to 55 Fox Street, Fitchburg.

GREATER BOSTON MEDICAL SOCIETY

A meeting of the Greater Boston Medical Society will be held in the auditorium of the Beth Israel Hospital on Wednesday, March 21, at 8:15 p.m. Dr. Sydney S. Gellis will speak on the subject "Viral Hepatitis." Drs. Charles A. Janeway and Franz J. Ingelfinger will discuss the paper.

NEW ENGLAND CARDIOVASCULAR SOCIETY

A meeting of the New England Cardiovascular Society will be presented by the Beth Israel Hospital at the New England Mutual Hall, 225 Clarendon Street, Boston, on Monday, March 19, at 8 p.m., Dr. Herrman L. Blumgart presiding.

PROGRAM

Electrokymographic Observations in Constrictive Pericarditis. Dr. Felix Fleischner.

The Role of the Vagus in Left Bundle Branch Block. Dr. Edward Meilman.

Quantitative Studies in Man of the Cardiovascular Effects of Reflex Vagal Stimulation Produced by Carotid Sinus Pressure. Dr. Arthur Linenthal.

The Effects of Drugs upon Coronary Artery Anastomoses. Drs. Paul M. Zoll and Leona R. Norman.

Injection Study of Arteriosclerosis in Amputated Legs. Dr. Stanford Wessler.

Disease of the Interventricular Septum. Drs. Louis Wolff and Harold Osher.

Summary of Present Status of Radioactive Iodine Treatment of Chronic Heart Disease. Drs. A. Stone Freedberg and George S. Kurland.

Interested physicians and medical students are cordially invited to attend. (*Please note place of meeting.*)

NAVAL RESERVE VOLUNTEER MEDICAL UNIT NO. 1-1

Meetings of the Naval Reserve Volunteer Medical Unit No. 1-1 will be held at the Children's Medical Center, 300 Longwood Avenue, Boston, at 7:30 p.m., on the following dates:

March 14 — Types of Injuries Seen in Korean Casualties at the United States Naval Hospital, Chelsea. C. F. Morrison, Capt., MC, USN, chief of Orthopedic Service, United States Naval Hospital, Chelsea, and J. C. Luce, Commander, MC, USN, Neurosurgeon, United States Naval Hospital, Chelsea.

March 28 — Acid Gases in Conflagrations. Richard Ford, M.D., acting head, Department of Legal Medicine, Harvard Medical School.

Physicians and medical students are cordially invited to attend.

NATIONAL LEAGUE OF NURSING EDUCATION

The fifty-fifth annual convention of the National League of Nursing Education will be held in Boston on May 7–11. The theme of the convention will be "Education for Nursing Services." Dr. William Schmidt, associate professor, Harvard School of Public Health, and Miss Lucile Petry, assistant surgeon general, Federal Security Agency, Public Health Service, will speak at evening meetings.

Attendance is open to nurses, student nurses, and others who are interested. Registration fee is $1 for students and $5 for all others.

AMERICAN GOITER ASSOCIATION

The annual meeting of the American Goiter Association will be held in the Deshler-Wallick Hotel, Columbus, Ohio, on May 24, 25 and 26.

PUBLIC-HEALTH PHYSICIANS WANTED FOR FOREIGN SERVICE

The Civilian Personnel Branch of the Army Surgeon General's Office announces vacancies for one medical officer (director of public health and welfare) in Okinawa and nine public-health officers in Japan. All these positions have to do with the care of civilian population. Applicants must be Doctors of Medicine with public-health and welfare experience. There is no age limit.

The opening in Okinawa calls for a GS rating 15 and pays $10,000 per year plus 25 per cent post differential, a total of $12,500.

The openings in Japan call for a GS rating 13 and pay $7600 per year, plus free quarters, including furniture and maid service.

Physicians wishing to make application for these positions or desiring further information concerning them should write to Civilian Personnel Branch, Army Surgeon General's Office, Main Navy Building, Washington 25, D. C.

SOCIETY MEETINGS AND CONFERENCES

MARCH 11-16. College of Medical Evangelists. Page 74, issue of January 11.

MARCH 12. St. Francis Hospital. Page 346, issue of March 1.

MARCH 12. Boston City Hospital House Officers' Association. Page 313, issue of February 22.

MARCH 13. Phi Delta Epsilon Lecture. Page 274, issue of February 15.

MARCH 14. Naval Reserve Volunteer Medical Unit No. 1-1. Notice above.

MARCH 16 AND 17. American College of Surgeons. Page 274, issue of February 15.

MARCH 19. New England Cardiovascular Society. Notice above.

MARCH 20. Harvard Medical Society. Page 346, issue of March 1.

MARCH 20. South End Medical Club. Page 346, issue of March 1.

MARCH 21. Phi Delta Epsilon Fraternity Sigma Chapter. Page 346, issue of March 1.

MARCH 21. A Demonstration of Pilot Wearers of Some of the Newer Devices in Prostheses. Dr. Augustus Thorndike. New England Society of Physical Medicine. Hotel Kenmore. 8 p.m.

MARCH 21. Greater Boston Medical Society. Notice above.

MARCH 22. Hyman Morrison Lecture. Page 74, issue of January 11.

MARCH 26. Boston Lying-in Hospital Obstetric Round-Table Conference. Page 629, issue of October 19.

MARCH 26-28. American Academy of Pediatrics. Page 274, issue of February 15.

MARCH 27. Norfolk District Medical Society. Page 629, issue of October 19.

MARCH 28. Naval Reserve Volunteer Medical Unit No. 1-1. Notice above.

APRIL 4. New England Pediatric Society. Page 346, issue of March 1.

APRIL 7. Massachusetts Society of Anesthesiologists. Page 346, issue of March 1.

APRIL 9-13. American College of Physicians. Page 296, issue of June 15.

APRIL 10. New England Society of Anesthesiologists. Page 512, issue of September 28.

APRIL 12. The Diagnosis and Treatment of Kidney Diseases in Childhood. Dr. Charles A. Janeway. Pentucket Association of Physicians. 8:30 p.m. Haverhill.

APRIL 18. Physical Medicine and Rehabilitation in Psychiatry. Dr. Walter E. Barton. New England Society of Physical Medicine. Hotel Kenmore. 8 p.m.

APRIL 24. Norfolk District Medical Society. Page 629, issue of October 19.

APRIL 28. American Psychosomatic Society. Page 198, issue of February 1.

MAY 7-11. National League of Nursing Education. Notice above.

(*Notices concluded on page xvii*)